OM-186 895AB 2011−03

**Processes**

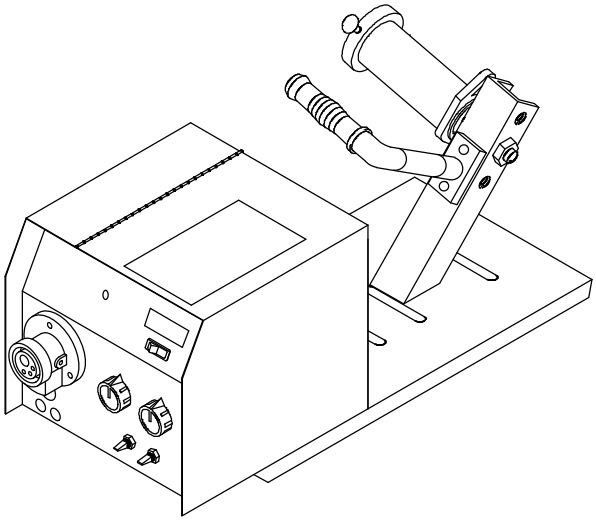
MIG (GMAW) Welding
Flux Cored (FCAW) Welding

**Description**

CV

Wire Feeder

# I-22 & I-24 CE



# OWNER'S MANUAL

**File: MIG (GMAW)**

Visit our website at
**www.MillerWelds.com**

# From Miller to You

*Thank you* and *congratulations* on choosing Miller. Now you can get the job done and get it done right. We know you don't have time to do it any other way.

That's why when Niels Miller first started building arc welders in 1929, he made sure his products offered long-lasting value and superior quality. Like you, his customers couldn't afford anything less. Miller products had to be more than the best they could be. They had to be the best you could buy.

Today, the people that build and sell Miller products continue the tradition. They're just as committed to providing equipment and service that meets the high standards of quality and value established in 1929.

This Owner's Manual is designed to help you get the most out of your Miller products. Please take time to read the Safety precautions. They will help you protect yourself against potential hazards on the worksite.

ISO 9001 REGISTERED QUALITY SYSTEM

Miller is the first welding equipment manufacturer in the U.S.A. to be registered to the ISO 9001 Quality System Standard.

We've made installation and operation quick and easy. With Miller you can count on years of reliable service with proper maintenance. And if for some reason the unit needs repair, there's a Troubleshooting section that will help you figure out what the problem is. The parts list will then help you to decide the exact part you may need to fix the problem. Warranty and service information for your particular model are also provided.

Miller Electric manufactures a full line of welders and welding related equipment. For information on other quality Miller products, contact your local Miller distributor to receive the latest full line catalog or individual specification sheets. **To locate your nearest distributor or service agency call 1-800-4-A-Miller, or visit us at www.MillerWelds.com on the web.**

TRUE BLUE® WARRANTY

Working as hard as you do – every power source from Miller is backed by the most hassle-free warranty in the business.

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# DECLARATION OF CONFORMITY

for European Community (CE marked) products.

**MILLER Electric Mfg. Co., 1635 Spencer Street, Appleton, WI 54914 U.S.A. declares that the product(s) identified in this declaration conform to the essential requirements and provisions of the stated Council Directive(s) and Standard(s).**

Product/Apparatus Identification:

| Product | Stock Number |
|---|---|
| I-24A W/CE & EURO GUN CONNECTIONS | 186493 |
| I-22A W/CE & EURO GUN CONNECTION | 186494 |
| | |

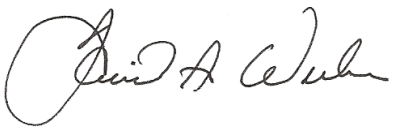
Council Directives:

- 2006/95/EC Low Voltage
- 2004/108/EC Electromagnetic Compatibility

Standards:

- IEC 60974-1:2005 Arc welding equipment – Part 1: Welding power sources
- IEC 60974-5:2007 Arc welding equipment – Part 5: Wire feeders
- IEC 60974-10:2007 Arc Welding Equipment – Part 10: Electromagnetic compatibility (EMC) requirements
- EN 50445:2008 Product family standard to demonstrate compliance of equipment for resistance welding, arc welding and allied processes with the basic restrictions related to human exposure to electromagnetic fields (0 Hz – 300Hz)

Signatory:



February 28, 2011

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**David A. Werba** Date of Declaration

MANAGER, PRODUCT DESIGN COMPLIANCE

241323D

# SECTION 1 − SAFETY PRECAUTIONS - READ BEFORE USING



**Protect yourself and others from injury — read and follow these precautions.**

## 1-1. Symbol Usage

**DANGER! − Indicates a hazardous situation which, if not avoided, will result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.**

**Indicates a hazardous situation which, if not avoided, could result in death or serious injury. The possible hazards are shown in the adjoining symbols or explained in the text.**

***NOTICE*** *− Indicates statements not related to personal injury.*

☞ *Indicates special instructions.*

This group of symbols means Warning! Watch Out! ELECTRIC SHOCK, MOVING PARTS, and HOT PARTS hazards. Consult symbols and related instructions below for necessary actions to avoid the hazards.

## 1-2. Arc Welding Hazards

**The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Safety Standards listed in Section 1-5. Read and follow all Safety Standards.**

**Only qualified persons should install, operate, maintain, and repair this unit.**

**During operation, keep everybody, especially children, away.**

### ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on. In semiautomatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not use AC output in damp areas, if movement is confined, or if there is a danger of falling.
- Use AC output ONLY if required for the welding process.
- If AC output is required, use remote output control if present on unit.
- Additional safety precautions are required when any of the following electrically hazardous conditions are present: in damp locations or while wearing wet clothing; on metal structures such as floors, gratings, or scaffolds; when in cramped positions such as sitting, kneeling, or lying; or when there is a high risk of unavoidable or accidental contact with the workpiece or ground. For these conditions, use the following equipment in order presented: 1) a semiautomatic DC constant voltage (wire) welder, 2) a DC manual (stick) welder, or 3) an AC welder with reduced open-circuit voltage. In most situations, use of a DC, constant voltage wire welder is recommended. And, do not work alone!
- Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tagout input power according to OSHA 29 CFR 1910.147 (see Safety Standards).
- Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.
- Always verify the supply ground − check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
- When making input connections, attach proper grounding conductor first − double-check connections.
- Keep cords dry, free of oil and grease, and protected from hot metal and sparks.
- Frequently inspect input power cord for damage or bare wiring − replace cord immediately if damaged − bare wiring can kill.
- Turn off all equipment when not in use.
- Do not use worn, damaged, undersized, or poorly spliced cables.
- Do not drape cables over your body.
- If earth grounding of the workpiece is required, ground it directly with a separate cable.
- Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
- Do not touch electrode holders connected to two welding machines at the same time since double open-circuit voltage will be present.
- Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
- Wear a safety harness if working above floor level.
- Keep all panels and covers securely in place.
- Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.
- Insulate work clamp when not connected to workpiece to prevent contact with any metal object.
- Do not connect more than one electrode or work cable to any single weld output terminal.

### SIGNIFICANT DC VOLTAGE exists in inverter welding power sources AFTER removal of input power.

- Turn Off inverter, disconnect input power, and discharge input capacitors according to instructions in Maintenance Section before touching any parts.

### HOT PARTS can burn.

- Do not touch hot parts bare handed.
- Allow cooling period before working on equipment.
- To handle hot parts, use proper tools and/or wear heavy, insulated welding gloves and clothing to prevent burns.

## FUMES AND GASES can be hazardous.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

- Keep your head out of the fumes. Do not breathe the fumes.
- If inside, ventilate the area and/or use local forced ventilation at the arc to remove welding fumes and gases.
- If ventilation is poor, wear an approved air-supplied respirator.
- Read and understand the Material Safety Data Sheets (MSDSs) and the manufacturer's instructions for metals, consumables, coatings, cleaners, and degreasers.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watch-person nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
- Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

## ARC RAYS can burn eyes and skin.

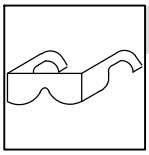
Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

- Wear an approved welding helmet fitted with a proper shade of filter lenses to protect your face and eyes from arc rays and sparks when welding or watching (see ANSI Z49.1 and Z87.1 listed in Safety Standards).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect others from flash, glare and sparks; warn others not to watch the arc.
- Wear protective clothing made from durable, flame-resistant material (leather, heavy cotton, or wool) and foot protection.

## WELDING can cause fire or explosion.

Welding on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or fire. Check and be sure the area is safe before doing any welding.

- Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
- Do not weld where flying sparks can strike flammable material.
- Protect yourself and others from flying sparks and hot metal.
- Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
- Watch for fire, and keep a fire extinguisher nearby.
- Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
- Do not weld on closed containers such as tanks, drums, or pipes, unless they are properly prepared according to AWS F4.1 (see Safety Standards).
- Do not weld where the atmosphere may contain flammable dust, gas, or liquid vapors (such as gasoline).
- Connect work cable to the work as close to the welding area as practical to prevent welding current from traveling long, possibly unknown paths and causing electric shock, sparks, and fire hazards.
- Do not use welder to thaw frozen pipes.
- Remove stick electrode from holder or cut off welding wire at contact tip when not in use.
- Wear oil-free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap.
- Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding.
- After completion of work, inspect area to ensure it is free of sparks, glowing embers, and flames.
- Use only correct fuses or circuit breakers. Do not oversize or by-pass them.
- Follow requirements in OSHA 1910.252 (a) (2) (iv) and NFPA 51B for hot work and have a fire watcher and extinguisher nearby.



## FLYING METAL or DIRT can injure eyes.

- Welding, chipping, wire brushing, and grinding cause sparks and flying metal. As welds cool, they can throw off slag.
- Wear approved safety glasses with side shields even under your welding helmet.

## BUILDUP OF GAS can injure or kill.

- Shut off compressed gas supply when not in use.
- Always ventilate confined spaces or use approved air-supplied respirator.

## ELECTRIC AND MAGNETIC FIELDS (EMF) can affect Implanted Medical Devices.

- Wearers of Pacemakers and other Implanted Medical Devices should keep away.
- Implanted Medical Device wearers should consult their doctor and the device manufacturer before going near arc welding, spot welding, gouging, plasma arc cutting, or induction heating operations.

## NOISE can damage hearing.

Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.

## CYLINDERS can explode if damaged.

Compressed gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.

- Protect compressed gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, sparks, and arcs.
- Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.
- Keep cylinders away from any welding or other electrical circuits.
- Never drape a welding torch over a gas cylinder.
- Never allow a welding electrode to touch any cylinder.
- Never weld on a pressurized cylinder − explosion will result.
- Use only correct compressed gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.
- Turn face away from valve outlet when opening cylinder valve.
- Keep protective cap in place over valve except when cylinder is in use or connected for use.
- Use the right equipment, correct procedures, and sufficient number of persons to lift and move cylinders.
- Read and follow instructions on compressed gas cylinders, associated equipment, and Compressed Gas Association (CGA) publication P-1 listed in Safety Standards.

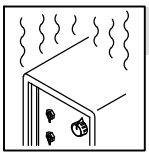
## 1-3. Additional Symbols For Installation, Operation, And Maintenance

### FIRE OR EXPLOSION hazard.

- Do not install or place unit on, over, or near combustible surfaces.
- Do not install unit near flammables.
- Do not overload building wiring − be sure power supply system is properly sized, rated, and protected to handle this unit.

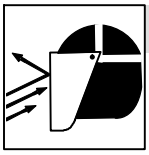
### FALLING EQUIPMENT can injure.

- Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
- Use equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.
- Keep equipment (cables and cords) away from moving vehicles when working from an aerial location.
- Follow the guidelines in the Applications Manual for the Revised NIOSH Lifting Equation (Publication No. 94−110) when manually lifting heavy parts or equipment.



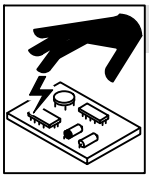
### OVERUSE can cause OVERHEATING

- Allow cooling period; follow rated duty cycle.
- Reduce current or reduce duty cycle before starting to weld again.
- Do not block or filter airflow to unit.



### FLYING SPARKS can injure.

- Wear a face shield to protect eyes and face.
- Shape tungsten electrode only on grinder with proper guards in a safe location wearing proper face, hand, and body protection.
- Sparks can cause fires — keep flammables away.



### STATIC (ESD) can damage PC boards.

- Put on grounded wrist strap BEFORE handling boards or parts.
- Use proper static-proof bags and boxes to store, move, or ship PC boards.

### MOVING PARTS can injure.

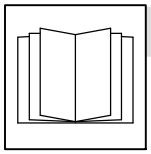
- Keep away from moving parts.
- Keep away from pinch points such as drive rolls.

### WELDING WIRE can injure.

- Do not press gun trigger until instructed to do so.
- Do not point gun toward any part of the body, other people, or any metal when threading welding wire.

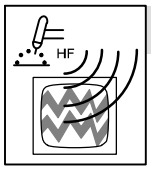
### MOVING PARTS can injure.

- Keep away from moving parts such as fans.
- Keep all doors, panels, covers, and guards closed and securely in place.
- Have only qualified persons remove doors, panels, covers, or guards for maintenance and troubleshooting as necessary.
- Reinstall doors, panels, covers, or guards when maintenance is finished and before reconnecting input power.



### READ INSTRUCTIONS.

- Read and follow all labels and the Owner's Manual carefully before installing, operating, or servicing unit. Read the safety information at the beginning of the manual and in each section.
- Use only genuine replacement parts from the manufacturer.
- Perform maintenance and service according to the Owner's Manuals, industry standards, and national, state, and local codes.




### H.F. RADIATION can cause interference.

- High-frequency (H.F.) can interfere with radio navigation, safety services, computers, and communications equipment.
- Have only qualified persons familiar with electronic equipment perform this installation.
- The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
- If notified by the FCC about interference, stop using the equipment at once.
- Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut, keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.

### ARC WELDING can cause interference.

- Electromagnetic energy can interfere with sensitive electronic equipment such as computers and computer-driven equipment such as robots.
- Be sure all equipment in the welding area is electromagnetically compatible.
- To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor.
- Locate welding operation 100 meters from any sensitive electronic equipment.
- Be sure this welding machine is installed and grounded according to this manual.
- If interference still occurs, the user must take extra measures such as moving the welding machine, using shielded cables, using line filters, or shielding the work area.

## 1-4. California Proposition 65 Warnings

**Welding or cutting equipment produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)**

**Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. *Wash hands after handling.***

**This product contains chemicals, including lead, known to the state of California to cause cancer, birth defects, or other reproductive harm. *Wash hands after use.***

**For Gasoline Engines:**

**Engine exhaust contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.**

**For Diesel Engines:**

**Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.**

## 1-5. Principal Safety Standards

*Safety in Welding, Cutting, and Allied Processes,* ANSI Standard Z49.1, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

*Safe Practices for the Preparation of Containers and Piping for Welding and Cutting,* American Welding Society Standard AWS F4.1, from Global Engineering Documents (phone: 1-877-413-5184, website: www.global.ihs.com).

*National Electrical Code,* NFPA Standard 70, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org and www. sparky.org).

*Safe Handling of Compressed Gases in Cylinders,* CGA Pamphlet P-1, from Compressed Gas Association, 4221 Walney Road, 5th Floor, Chantilly, VA 20151 (phone: 703-788-2700, website:www.cganet.com).

*Safety in Welding, Cutting, and Allied Processes,* CSA Standard W117.2, from Canadian Standards Association, Standards Sales, 5060 Spectrum Way, Suite 100, Ontario, Canada L4W 5NS (phone: 800-463-6727, website: www.csa-international.org).

*Safe Practice For Occupational And Educational Eye And Face Protection,* ANSI Standard Z87.1, from American National Standards Institute, 25 West 43rd Street, New York, NY 10036 (phone: 212-642-4900, website: www.ansi.org).

*Standard for Fire Prevention During Welding, Cutting, and Other Hot Work,* NFPA Standard 51B, from National Fire Protection Association, Quincy, MA 02269 (phone: 1-800-344-3555, website: www.nfpa.org.

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, from U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 (phone: 1-866-512-1800) (there are 10 OSHA Regional Offices—phone for Region 5, Chicago, is 312-353-2220, website: www.osha.gov).

U.S. Consumer Product Safety Commission (CPSC), 4330 East West Highway, Bethesda, MD 20814 (phone: 301-504-7923, website: www.cpsc.gov).

*Applications Manual for the Revised NIOSH Lifting Equation*, The National Institute for Occupational Safety and Health (NIOSH), 1600 Clifton Rd, Atlanta, GA 30333 (phone: 1-800-232-4636, website: www.cdc.gov/NIOSH).

## 1-6. EMF Information

Electric current flowing through any conductor causes localized electric and magnetic fields (EMF). Welding current creates an EMF field around the welding circuit and welding equipment. EMF fields may interfere with some medical implants, e.g. pacemakers. Protective measures for persons wearing medical implants have to be taken. For example, access restrictions for passers−by or individual risk assessment for welders. All welders should use the following procedures in order to minimize exposure to EMF fields from the welding circuit:

1. Keep cables close together by twisting or taping them, or using a cable cover.
2. Do not place your body between welding cables. Arrange cables to one side and away from the operator.
3. Do not coil or drape cables around your body.
4. Keep head and trunk as far away from the equipment in the welding circuit as possible.
5. Connect work clamp to workpiece as close to the weld as possible.
6. Do not work next to, sit or lean on the welding power source.
7. Do not weld whilst carrying the welding power source or wire feeder.

**About Implanted Medical Devices:**

Implanted Medical Device wearers should consult their doctor and the device manufacturer before performing or going near arc welding, spot welding, gouging, plasma arc cutting, or induction heating operations. If cleared by your doctor, then following the above procedures is recommended.

# SECTION 2 − CONSIGNES DE SÉCURITÉ − LIRE AVANT UTILISATION



**Se protéger et protéger les autres contre le risque de blessure — lire et respecter ces consignes.**

## 2-1. Symboles utilisés

**DANGER! − Indique une situation dangereuse qui si on l'évite pas peut donner la mort ou des blessures graves. Les dangers possibles sont montrés par les symboles joints ou sont expliqués dans le texte.**

**Indique une situation dangereuse qui si on l'évite pas peut donner la mort ou des blessures graves. Les dangers possibles sont montrés par les symboles joints ou sont expliqués dans le texte.**

***NOTE*** *− Indique des déclarations pas en relation avec des blessures personnelles.*

☞ *Indique des instructions spécifiques.*

Ce groupe de symboles veut dire Avertissement! Attention! DANGER DE CHOC ELECTRIQUE, PIECES EN MOUVEMENT, et PIECES CHAUDES. Consulter les symboles et les instructions ci-dessous y afférant pour les actions nécessaires afin d'éviter le danger.

## 2-2. Dangers relatifs au soudage à l'arc

**Les symboles représentés ci-dessous sont utilisés dans ce manuel pour attirer l'attention et identifier les dangers possibles. En présence de l'un de ces symboles, prendre garde et suivre les instructions afférentes pour éviter tout risque. Les instructions en matière de sécurité indiquées ci-dessous ne constituent qu'un sommaire des instructions de sécurité plus complètes fournies dans les normes de sécurité énumérées dans la Section 2-5. Lire et observer toutes les normes de sécurité.**

**Seul un personnel qualifié est autorisé à installer, faire fonctionner, entretenir et réparer cet appareil.**

**Pendant le fonctionnement, maintenir à distance toutes les personnes, notamment les enfants de l'appareil.**

### UNE DÉCHARGE ÉLECTRIQUE peut entraîner la mort.

Le contact d'organes électriques sous tension peut provoquer des accidents mortels ou des brûlures graves. Le circuit de l'électrode et de la pièce est sous tension lorsque le courant est délivré à la sortie. Le circuit d'alimentation et les circuits internes de la machine sont également sous tension lorsque l'alimentation est sur Marche. Dans le mode de soudage avec du fil, le fil, le dérouleur, le bloc de commande du rouleau et toutes les parties métalliques en contact avec le fil sont sous tension électrique. Un équipement installé ou mis à la terre de manière incorrecte ou impropre constitue un danger.

- Ne pas toucher aux pièces électriques sous tension.
- Porter des gants isolants et des vêtements de protection secs et sans trous.
- S'isoler de la pièce à couper et du sol en utilisant des housses ou des tapis assez grands afin d'éviter tout contact physique avec la pièce à couper ou le sol.
- Ne pas se servir de source électrique à courant électrique dans les zones humides, dans les endroits confinés ou là où on risque de tomber.
- Se servir d'une source électrique à courant électrique UNIQUEMENT si le procédé de soudage le demande.
- Si l'utilisation d'une source électrique à courant électrique s'avère nécessaire, se servir de la fonction de télécommande si l'appareil en est équipé.
- D'autres consignes de sécurité sont nécessaires dans les conditions suivantes : risques électriques dans un environnement humide ou si l'on porte des vêtements mouillés ; sur des structures métalliques telles que sols, grilles ou échafaudages ; en position coincée comme assise, à genoux ou couchée ; ou s'il y a un risque élevé de contact inévitable ou accidentel avec la pièce à souder ou le sol. Dans ces conditions, utiliser les équipements suivants, dans l'ordre indiqué : 1) un poste à souder DC à tension constante (à fil), 2) un poste à souder DC manuel (électrode) ou 3) un poste à souder AC à tension à vide réduite. Dans la plupart des situations, l'utilisation d'un poste à souder DC à fil à tension constante est recommandée. En outre, ne pas travailler seul !
- Couper l'alimentation ou arrêter le moteur avant de procéder à l'installation, à la réparation ou à l'entretien de l'appareil. Déverrouiller l'alimentation selon la norme OSHA 29 CFR 1910.147 (voir normes de sécurité).
- Installer le poste correctement et le mettre à la terre convenablement selon les consignes du manuel de l'opérateur et les normes nationales, provinciales et locales.
- Toujours vérifier la terre du cordon d'alimentation. Vérifier et s'assurer que le fil de terre du cordon d'alimentation est bien raccordé à la borne de terre du sectionneur ou que la fiche du cordon est raccordée à une prise correctement mise à la terre.
- En effectuant les raccordements d'entrée, fixer d'abord le conducteur de mise à la terre approprié et contre-vérifier les connexions.
- Les câbles doivent être exempts d'humidité, d'huile et de graisse; protégez−les contre les étincelles et les pièces métalliques chaudes.
- Vérifier fréquemment le cordon d'alimentation afin de s'assurer qu'il n'est pas altéré ou à nu, le remplacer immédiatement s'il l'est. Un fil à nu peut entraîner la mort.
- L'équipement doit être hors tension lorsqu'il n'est pas utilisé.
- Ne pas utiliser des câbles usés, endommagés, de grosseur insuffisante ou mal épissés.
- Ne pas enrouler les câbles autour du corps.
- Si la pièce soudée doit être mise à la terre, le faire directement avec un câble distinct.
- Ne pas toucher l'électrode quand on est en contact avec la pièce, la terre ou une électrode provenant d'une autre machine.
- Ne pas toucher des porte électrodes connectés à deux machines en même temps à cause de la présence d'une tension à vide doublée.
- N'utiliser qu'un matériel en bon état. Réparer ou remplacer sur-le-champ les pièces endommagées. Entretenir l'appareil conformément à ce manuel.
- Porter un harnais de sécurité si l'on doit travailler au-dessus du sol.
- S'assurer que tous les panneaux et couvercles sont correctement en place.
- Fixer le câble de retour de façon à obtenir un bon contact métal-métal avec la pièce à souder ou la table de travail, le plus près possible de la soudure.
- Isoler la pince de masse quand pas mis à la pièce pour éviter le contact avec tout objet métallique.
- Ne pas raccorder plus d'une électrode ou plus d'un câble de masse à une même borne de sortie de soudage.

**Il reste une TENSION DC NON NÉGLIGEABLE dans les sources de soudage onduleur UNE FOIS l'alimentation coupée.**

- Arrêter les convertisseurs, débrancher le courant électrique et décharger les condensateurs d'alimentation selon les instructions indiquées dans la partie Entretien avant de toucher les pièces.

## LES PIÈCES CHAUDES peuvent provoquer des brûlures.

- Ne pas toucher à mains nues les parties chaudes.
- Prévoir une période de refroidissement avant de travailler à l'équipement.
- Ne pas toucher aux pièces chaudes, utiliser les outils recommandés et porter des gants de soudage et des vêtements épais pour éviter les brûlures.

## LES FUMÉES ET LES GAZ peuvent être dangereux.

Le soudage génère des fumées et des gaz. Leur inhalation peut être dangereux pour votre santé.

- Eloigner votre tête des fumées. Ne pas respirer les fumées.
- À l'intérieur, ventiler la zone et/ou utiliser une ventilation forcée au niveau de l'arc pour l'évacuation des fumées et des gaz de soudage.
- Si la ventilation est médiocre, porter un respirateur anti-vapeurs approuvé.
- Lire et comprendre les spécifications de sécurité des matériaux (MSDS) et les instructions du fabricant concernant les métaux, les consommables, les revêtements, les nettoyants et les dégraisseurs.
- Travailler dans un espace fermé seulement s'il est bien ventilé ou en portant un respirateur à alimentation d'air. Demander toujours à un surveillant dûment formé de se tenir à proximité. Des fumées et des gaz de soudage peuvent déplacer l'air et abaisser le niveau d'oxygène provoquant des blessures ou des accidents mortels. S'assurer que l'air de respiration ne présente aucun danger.
- Ne pas souder dans des endroits situés à proximité d'opérations de dégraissage, de nettoyage ou de pulvérisation. La chaleur et les rayons de l'arc peuvent réagir en présence de vapeurs et former des gaz hautement toxiques et irritants.
- Ne pas souder des métaux munis d'un revêtement, tels que l'acier galvanisé, plaqué en plomb ou au cadmium à moins que le revêtement n'ait été enlevé dans la zone de soudure, que l'endroit soit bien ventilé, et en portant un respirateur à alimentation d'air. Les revêtements et tous les métaux renfermant ces éléments peuvent dégager des fumées toxiques en cas de soudage.

## LES RAYONS DE L'ARC peuvent provoquer des brûlures dans les yeux et sur la peau.

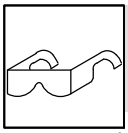
Le rayonnement de l'arc du procédé de soudag génère des rayons visibles et invisibles intense (ultraviolets et infrarouges) susceptibles de provoquer des brûlure dans les yeux et sur la peau. Des étincelles sont projetées pendant l soudage.

- Porter un casque de soudage approuvé muni de verres filtrants approprié pour protéger visage et yeux pour protéger votre visage et vos yeux pendant le soudage ou pour regarder (voir ANSI Z49.1 et Z87.1 énuméré dans les normes de sécurité).
- Porter des lunettes de sécurité avec écrans latéraux même sous votre casque.
- Avoir recours à des écrans protecteurs ou à des rideaux pour protéger les autres contre les rayonnements les éblouissements et les étincelles ; prévenir toute personne sur les lieux de ne pas regarder l'arc.
- Porter des vêtements confectionnés avec des matières résistantes et ignifuges (cuir, coton lourd ou laine) et des bottes de protection.

## LE SOUDAGE peut provoquer un incendie ou une explosion.

Le soudage effectué sur des conteneurs fermés tels que des réservoirs, tambours ou des conduites peut provoquer leur éclatement. Des étincelles peuvent être projetées de l'arc de soudure. La projection d'étincelles, des pièces chaudes et des équipements chauds peut provoquer des incendies et des brûlures. Le contact accidentel de l'électrode avec des objets métalliques peut provoquer des étincelles, une explosion, un surchauffement ou un incendie. Avant de commencer le soudage, vérifier et s'assurer que l'endroit ne présente pas de danger.

- Déplacer toutes les substances inflammables à une distance de 10,7 m de l'arc de soudage. En cas d'impossibilité les recouvrir soigneusement avec des protections homologués.
- Ne pas souder dans un endroit là où des étincelles peuvent tomber sur des substances inflammables.
- Se protéger et d'autres personnes de la projection d'étincelles et de métal chaud.
- Des étincelles et des matériaux chauds du soudage peuvent facilement passer dans d'autres zones en traversant de petites fissures et des ouvertures.
- Surveiller tout déclenchement d'incendie et tenir un extincteur à proximité.
- Le soudage effectué sur un plafond, plancher, paroi ou séparation peut déclencher un incendie de l'autre côté.
- Ne pas effectuer le soudage sur des conteneurs fermés tels que des réservoirs, tambours, ou conduites, à moins qu'ils n'aient été préparés correctement conformément à AWS F4.1 (voir les normes de sécurité).
- Ne soudez pas si l'air ambiant est chargé de particules, gaz, ou vapeurs inflammables (vapeur d'essence, par exemple).
- Brancher le câble de masse sur la pièce le plus près possible de la zone de soudage pour éviter le transport du courant sur une longue distance par des chemins inconnus éventuels en provoquant des risques d'électrocution, d'étincelles et d'incendie.
- Ne pas utiliser le poste de soudage pour dégeler des conduites gelées.
- En cas de non utilisation, enlever la baguette d'électrode du porte-électrode ou couper le fil à la pointe de contact.
- Porter des vêtements de protection dépourvus d'huile tels que des gants en cuir, une chemise en matériau lourd, des pantalons sans revers, des chaussures hautes et un couvre chef.
- Avant de souder, retirer toute substance combustible de vos poches telles qu'un allumeur au butane ou des allumettes.
- Une fois le travail achevé, assurez−vous qu'il ne reste aucune trace d'étincelles incandescentes ni de flammes.
- Utiliser exclusivement des fusibles ou coupe−circuits appropriés. Ne pas augmenter leur puissance; ne pas les ponter.
- Une fois le travail achevé, assurez−vous qu'il ne reste aucune trace d'étincelles incandescentes ni de flammes.
- Utiliser exclusivement des fusibles ou coupe−circuits appropriés. Ne pas augmenter leur puissance; ne pas les ponter.
- Suivre les recommandations dans OSHA 1910.252(a)(2)(iv) et NFPA 51B pour les travaux à chaud et avoir de la surveillance et un extincteur à proximité.



## DES PIECES DE METAL ou DES SALETES peuvent provoquer des blessures dans les yeux.

- Le soudage, l'écaillement, le passage de la pièce à la brosse en fil de fer, et le meulage génèrent des étincelles et des particules métalliques volantes. Pendant la période de refroidissement des soudures, elles risquent de projeter du laitier.
- Porter des lunettes de sécurité avec écrans latéraux ou un écran facial.

### LES ACCUMULATIONS DE GAZ risquent de provoquer des blessures ou même la mort.

- Fermer l'alimentation du gaz comprimé en cas de non utilisation.
- Veiller toujours à bien aérer les espaces confinés ou se servir d'un respirateur d'adduction d'air homologué.

### Les CHAMPS ÉLECTROMAGNÉTIQUES (CEM) peuvent affecter les implants médicaux.

- Les porteurs de stimulateurs cardiaques et autres implants médicaux doivent rester à distance.
- Les porteurs d'implants médicaux doivent consulter leur médecin et le fabricant du dispositif avant de s'approcher de la zone où se déroule du soudage à l'arc, du soudage par points, du gougeage, de la découpe plasma ou une opération de chauffage par induction.

### LE BRUIT peut endommager l'ouïe.

Le bruit des processus et des équipements peut affecter l'ouïe.

- Porter des protections approuvées pour les oreilles si le niveau sonore est trop élevé.

### LES BOUTEILLES peuvent exploser si elles sont endommagées.

Les bouteilles de gaz comprimé contiennent du gaz sous haute pression. Si une bouteille est endommagée, elle peut exploser. Du fait que les bouteilles de gaz font normalement partie du procédé de soudage, les manipuler avec précaution.

- Protéger les bouteilles de gaz comprimé d'une chaleur excessive, des chocs mécaniques, des dommages physiques, du laitier, des flammes ouvertes, des étincelles et des arcs.
- Placer les bouteilles debout en les fixant dans un support stationnaire ou dans un porte-bouteilles pour les empêcher de tomber ou de se renverser.
- Tenir les bouteilles éloignées des circuits de soudage ou autres circuits électriques.
- Ne jamais placer une torche de soudage sur une bouteille à gaz.
- Une électrode de soudage ne doit jamais entrer en contact avec une bouteille.
- Ne jamais souder une bouteille pressurisée − risque d'explosion.
- Utiliser seulement des bouteilles de gaz comprimé, régulateurs, tuyaux et raccords convenables pour cette application spécifique; les maintenir ainsi que les éléments associés en bon état.
- Détourner votre visage du détendeur-régulateur lorsque vous ouvrez la soupape de la bouteille.
- Le couvercle du détendeur doit toujours être en place, sauf lorsque la bouteille est utilisée ou qu'elle est reliée pour usage ultérieur.
- Utiliser les équipements corrects, les bonnes procédures et suffisamment de personnes pour soulever et déplacer les bouteilles.
- Lire et suivre les instructions sur les bouteilles de gaz comprimé, l'équipement connexe et le dépliant P-1 de la CGA (Compressed Gas Association) mentionné dans les principales normes de sécurité.

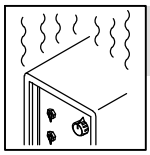
## 2-3. Dangers supplémentaires en relation avec l'installation, le fonctionnement et la maintenance

### Risque D'INCENDIE OU D'EXPLOSION.

- Ne pas placer l'appareil sur, au-dessus ou à proximité de surfaces inflammables.
- Ne pas installer l'appareil à proximité de produits inflammables.
- Ne pas surcharger l'installation électrique − s'assurer que l'alimentation est correctement dimensionnée et protégée avant de mettre l'appareil en service.

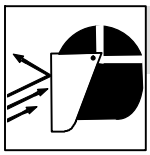
### LA CHUTE DE L'ÉQUIPEMENT peut provoquer des blessures.

- Utiliser l'anneau de levage uniquement pour soulever l'appareil, NON PAS les chariots, les bouteilles de gaz ou tout autre accessoire.
- Utiliser un équipement de levage de capacité suffisante pour lever l'appareil.
- En utilisant des fourches de levage pour déplacer l'unité, s'assurer que les fourches sont suffisamment longues pour dépasser du côté opposé de l'appareil.
- Tenir l'équipement (câbles et cordons) à distance des véhicules mobiles lors de toute opération en hauteur.
- Suivre les consignes du Manuel des applications pour l'équation de levage NIOSH révisée (Publication Nº94–110) lors du levage manuelle de pièces ou équipements lourds.



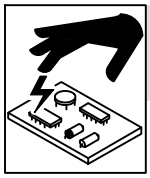
### L'EMPLOI EXCESSIF peut SURCHAUFFER L'ÉQUIPEMENT.

- Prévoir une période de refroidissement ; respecter le cycle opératoire nominal.
- Réduire le courant ou le facteur de marche avant de poursuivre le soudage.
- Ne pas obstruer les passages d'air du poste.



### LES ÉTINCELLES PROJETÉES peuvent provoquer des blessures.

- Porter un écran facial pour protéger le visage et les yeux.
- Affûter l'électrode au tungstène uniquement à la meuleuse dotée de protecteurs. Cette manœuvre est à exécuter dans un endroit sûr lorsque l'on porte l'équipement homologué de protection du visage, des mains et du corps.
- Les étincelles risquent de causer un incendie − éloigner toute substance inflammable.



### LES CHARGES ÉLECTROSTATIQUES peuvent endommager les circuits imprimés.

- Établir la connexion avec la barrette de terre avant de manipuler des cartes ou des pièces.
- Utiliser des pochettes et des boîtes antistatiques pour stocker, déplacer ou expédier des cartes de circuits imprimes.

**Les PIÈCES MOBILES peuvent causer des blessures.**

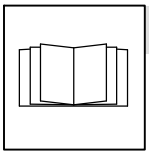
- Ne pas s'approcher des organes mobiles.
- Ne pas s'approcher des points de coincement tels que des rouleaux de commande.

**LES FILS DE SOUDAGE peuvent provoquer des blessures.**

- Ne pas appuyer sur la gâchette avant d'en avoir reçu l'instruction.
- Ne pas diriger le pistolet vers soi, d'autres personnes ou toute pièce mécanique en engageant le fil de soudage.

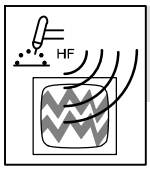
**Les PIÈCES MOBILES peuvent causer des blessures.**

- S'abstenir de toucher des organes mobiles tels que des ventilateurs.
- Maintenir fermés et verrouillés les portes, panneaux, recouvrements et dispositifs de protection.
- Lorsque cela est nécessaire pour des travaux d'entretien et de dépannage, faire retirer les portes, panneaux, recouvrements ou dispositifs de protection uniquement par du personnel qualifié.
- Remettre les portes, panneaux, recouvrements ou dispositifs de protection quand l'entretien est terminé et avant de rebrancher l'alimentation électrique.



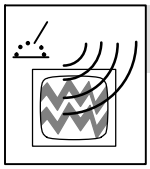
**LIRE LES INSTRUCTIONS.**

- Lire et appliquer les instructions sur les étiquettes et le Mode d'emploi avant l'installation, l'utilisation ou l'entretien de l'appareil. Lire les informations de sécurité au début du manuel et dans chaque section.
- N'utiliser que les pièces de rechange recommandées par le constructeur.
- Effectuer l'entretien en respectant les manuels d'utilisation, les normes industrielles et les codes nationaux, d'état et locaux.




**LE RAYONNEMENT HAUTE FRÉQUENCE (H.F.) risque de provoquer des interférences.**

- Le rayonnement haute fréquence (H.F.) peut provoquer des interférences avec les équipements de radio−navigation et de communication, les services de sécurité et les ordinateurs.
- Demander seulement à des personnes qualifiées familiarisées avec des équipements électroniques de faire fonctionner l'installation.
- L'utilisateur est tenu de faire corriger rapidement par un électricien qualifié les interférences résultant de l'installation.
- Si le FCC signale des interférences, arrêter immédiatement l'appareil.
- Effectuer régulièrement le contrôle et l'entretien de l'installation.
- Maintenir soigneusement fermés les portes et les panneaux des sources de haute fréquence, maintenir les éclateurs à une distance correcte et utiliser une terre et un blindage pour réduire les interférences éventuelles.



**LE SOUDAGE À L'ARC risque de provoquer des interférences.**

- L'énergie électromagnétique risque de provoquer des interférences pour l'équipement électronique sensible tel que les ordinateurs et l'équipement commandé par ordinateur tel que les robots.
- Veiller à ce que tout l'équipement de la zone de soudage soit compatible électromagnétiquement.
- Pour réduire la possibilité d'interférence, maintenir les câbles de soudage aussi courts que possible, les grouper, et les poser aussi bas que possible (ex. par terre).
- Veiller à souder à une distance de 100 mètres de tout équipement électronique sensible.
- Veiller à ce que ce poste de soudage soit posé et mis à la terre conformément à ce mode d'emploi.
- En cas d'interférences après avoir pris les mesures précédentes, il incombe à l'utilisateur de prendre des mesures supplémentaires telles que le déplacement du poste, l'utilisation de câbles blindés, l'utilisation de filtres de ligne ou la pose de protecteurs dans la zone de travail.

## 2-4. Proposition californienne 65 Avertissements

**Les équipements de soudage et de coupage produisent des fumées et des gaz qui contiennent des produits chimiques dont l'État de Californie reconnaît qu'ils provoquent des malformations congénitales et, dans certains cas, des cancers. (Code de santé et de sécurité de Californie, chapitre 25249.5 et suivants)**

**Les batteries, les bornes et autres accessoires contiennent du plomb et des composés à base de plomb, produits chimiques dont l'État de Californie reconnaît qu'ils provoquent des cancers et des malformations congénitales ou autres problèmes de procréation. Se laver les mains après manipulation.**

**Ce produit contient des produits chimiques, notamment du plomb, dont l'État de Californie reconnaît qu'ils provoquent des cancers, des malformations congénitales ou d'autres problèmes de procréation. *Se laver les mains après utilisation.***

**Pour les moteurs à essence :**

**Les gaz d'échappement des moteurs contiennent des produits chimiques dont l'État de Californie reconnaît qu'ils provoquent des cancers et des malformations congénitales ou autres problèmes de procréation.**

**Pour les moteurs diesel :**

**Les gaz d'échappement des moteurs diesel et certains de leurs composants sont reconnus par l'État de Californie comme provoquant des cancers et des malformations congénitales ou autres problèmes de procréation.**

## 2-5. Principales normes de sécurité

*Safety in Welding, Cutting, and Allied Processes,* ANSI Standard Z49.1, de Global Engineering Documents (téléphone : 1-877-413-5184, site Internet : www.global.ihs.com).

*Safe Practices for the Preparation of Containers and Piping for Welding and Cutting,* American Welding Society Standard AWS F4.1, de Global Engineering Documents (téléphone : 1-877-413-5184, site internet : www.global.ihs.com).

*National Electrical Code*, NFPA Standard 70, de National Fire Protection Association, Quincy, MA 02269 (téléphone : 800-344-3555, site Internet : www.nfpa.org et www.sparky.org).

*Safe Handling of Compressed Gases in Cylinders*, CGA Pamphlet P-1, de Compressed Gas Association, 4221 Walney Road, 5th Floor, Chantilly, VA 20151 (téléphone : 703-788-2700, site Internet : www.cganet.com).

*Safety in Welding, Cutting, and Allied Processes,* CSA Standard W117.2, de Canadian Standards Association, Standards Sales, 5060 Spectrum Way, Suite 100, Ontario, Canada L4W 5NS (téléphone : 800-463-6727, site internet : www.csa-international.org).

*Safe Practice For Occupational And Educational Eye And Face Protection,* ANSI Standard Z87.1, de American National Standards Institute, 25 West 43rd Street, New York, NY 10036 (téléphone : 212-642-4900, site Internet : www.ansi.org).

*Standard for Fire Prevention During Welding, Cutting, and Other Hot Work*, NFPA Standard 51B, de National Fire Protection Association, P.O. Box 9101, Quincy, MA 02269-9101 (téléphone : 617-770-3000, site Internet : www.nfpa.org).

OSHA, Occupational Safety and Health Standards for General Industry, Title 29, Code of Federal Regulations (CFR), Part 1910, Subpart Q, and Part 1926, Subpart J, de U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 (téléphone : 1-866-512-1800) (il y a 10 bureaux régionaux−le téléphone de la région 5, Chicago, est 312-353-2220, site Internet : www.osha.gov).

U.S. Consumer Product Safety Commission (CPSC), 4330 East West Highway, Bethesda, MD 20814 (téléphone : 301-504-7923, site internet : www.cpsc.gov).

*Applications Manual for the Revised NIOSH Lifting Equation*, The National Institute for Occupational Safety and Health (NIOSH), 1600 Clifton Rd, Atlanta, GA 30333 (télé[hone : 1-800-232-4636, site internet: www.cdc.gov/NIOSH).

## 2-6. Informations relatives aux CEM

Le courant électrique qui traverse tout conducteur génère des champs électromagnétiques (CEM) à certains endroits. Le courant de soudage crée un CEM autour du circuit et du matériel de soudage. Les CEM peuvent créer des interférences avec certains implants médicaux comme des stimulateurs cardiaques. Des mesures de protection pour les porteurs d'implants médicaux doivent être prises: par exemple, des restrictions d'accès pour les passants ou une évaluation individuelle des risques pour les soudeurs. Tous les soudeurs doivent appliquer les procédures suivantes pour minimiser l'exposition aux CEM provenant du circuit de soudage:

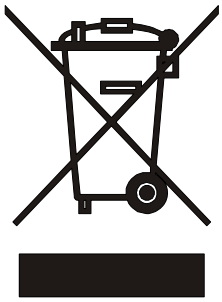
1. Rassembler les câbles en les torsadant ou en les attachant avec du ruban adhésif ou avec une housse.
2. Ne pas se tenir au milieu des câbles de soudage. Disposer les câbles d'un côté et à distance de l'opérateur.
3. Ne pas courber et ne pas entourer les câbles autour de votre corps.
4. Maintenir la tête et le torse aussi loin que possible du matériel du circuit de soudage.
5. Connecter la pince sur la pièce aussi près que possible de la soudure.
6. Ne pas travailler à proximité d'une source de soudage, ni s'asseoir ou se pencher dessus.
7. Ne pas souder tout en portant la source de soudage ou le dévidoir.

**En ce qui concerne les implants médicaux :**

Les porteurs d'implants doivent d'abord consulter leur médecin avant de s'approcher des opérations de soudage à l'arc, de soudage par points, de gougeage, du coupage plasma ou de chauffage par induction. Si le médecin approuve, il est recommandé de suivre les procédures précédentes.

# SECTION 3 − DEFINITIONS

## 3-1. WEEE Label (For Products Sold Within The EU)



Do not discard product (where applicable) with general waste.

Reuse or recycle Waste Electrical and Electronic Equipment (WEEE) by disposing at a designated collection facility.

Contact your local recycling office or your local distributor for further information.

## 3-2. Symbols And Definitions

☞ *Some symbols are found only on CE products.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| I | On | O | Off | | Input | | Output |
| A | Amperes | V | Volts | | Alternating Current | X | Duty Cycle |
| IP | Degree Of Protection | Hz | Hertz | | Circuit Breaker | | Wire Feed |
| | Jog | $U_1$ | Primary Voltage | | Gas Metal Arc Welding (GMAW) Gun | | Line Connection |
| | Purge | ●●●● t | Spot Weld Time | | Spot Weld | | Continuous Weld |
| t | Burnback Time | $t_1$ | Preflow Time | $t_2$ | Postflow Time | | Read Instructions |
| $U_2$ | Load Voltage | $I_1$ | Primary Current | $I_2$ | Rated Current | $U_1$ | Primary Voltage |

# SECTION 4 − INSTALLATION

## 4-1. Important Information Regarding CE Products (Sold Within The EU)

### A. Information On Electromagnetic Fields (EMF)

**This equipment shall not be used by the general public as the EMF limits for the general public might be exceeded during welding.**

This equipment is built in accordance with EN 60974−1 and is intended to be used only in an occupational environment (where the general public access is prohibited or regulated in such a way as to be similar to occupational use) by an expert or an instructed person.

Wire feeders and ancillary equipment (such as torches, liquid cooling systems and arc striking and stabilizing devices) as part of the welding circuit may not be a major contributor to the EMF. See the Owner's Manuals for all components of the welding circuit for additional EMF exposure information.

- The EMF assessment on this equipment was conducted at 0.5 meter.
- At a distance of 1 meter the EMF exposure values were less than 20% of the permissible values.

ce-emf 1 2010-10

### B. Information On Electromagnetic Compatibility (EMC)

**This Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low−voltage supply system. There may be potential difficulties in ensuring electromagnetic compatibility in those locations, due to conducted as well as radiated disturbances.**

ce-emc 3 2010-10

## 4-2. Serial Number And Rating Label Location

The serial number and rating information for this product is located on the rear panel. Use rating label to determine input power requirements and/or rated output. For future reference, write serial number in space provided on back cover of this manual.

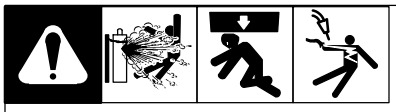
## 4-3. Specifications

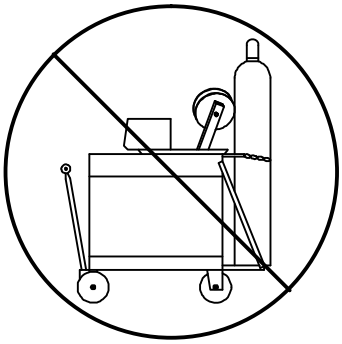
| Type of Input Power | Welding Power Source Type | Wire Feed Speed | Wire Diameter Range | Welding Circuit Rating | IP Rating | Overall Dimensions | Weight |
|---|---|---|---|---|---|---|---|
| 24 Volts AC Single Phase 7 Amperes 50/60 Hz | Constant Voltage (CV) DC With 14-Pin And Contactor Control | 1.9 To 19 mpm (75 to 750 ipm) | 0.6 To 2 mm (.023 To 5/64 in.)<br>Max Spool Capacity: 12 in. (305 mm)<br>Max Spool Weight: 27 kg (60 lb) | 100 Volts, 500 Amperes, 100% Duty Cycle | IP 21S | Length: 597 mm (23-1/2 in.)<br>Width: 273 mm (10-3/4 in.)<br>Height: 279 mm (11 in.) | 15.9 kg (35 lb) |

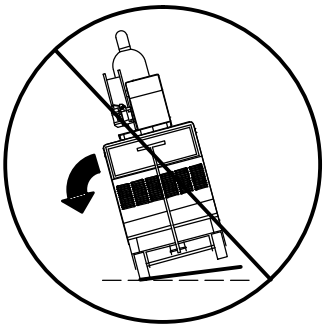
## 4-4. Wire Type, Size and Feed Speed Table

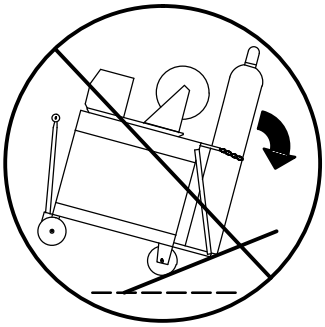
| Motor Speed | Wire Type | Wire Size | Rated Speed Range* |
|---|---|---|---|
| Standard | All | .023 To 5/64 in. (.6 to 2 mm) | 80 to 740 ipm (2.0 to 18.8 mpm) |
| *Rated Speed Range Per IEC 60974-5 | | | |

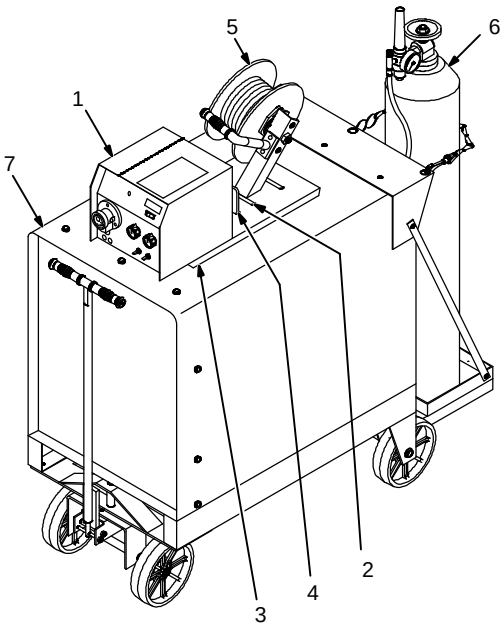
## 4-5. Site Selection

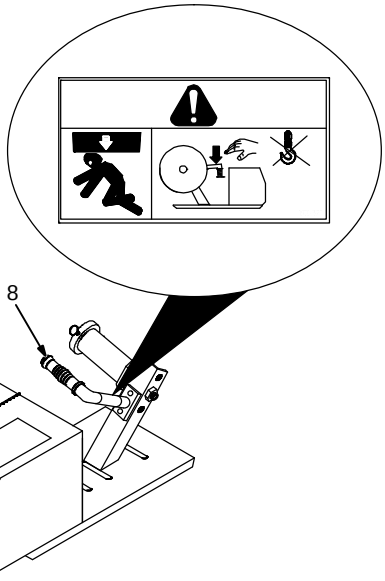











⚠ **Do not put feeder where welding wire hits cylinder.**

⚠ **Do not move or operate equipment when it could tip.**

⚠ **Manually use handle to move or briefly lift feeder.**

⚠ **Do not use lifting hook or other devices to lift or suspend feeder by the handle.**

1 Wire Feeder

2 Lifting Eye

3 Rubber Feet

4 Slot

Choose slot that allows all rubber feet to sit securely on top of welding power source.

5 Wire Spool/Reel

6 Gas Cylinder (Customer Supplied)

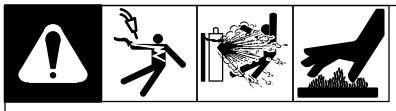
7 Welding Power Source

8 Lifting Handle

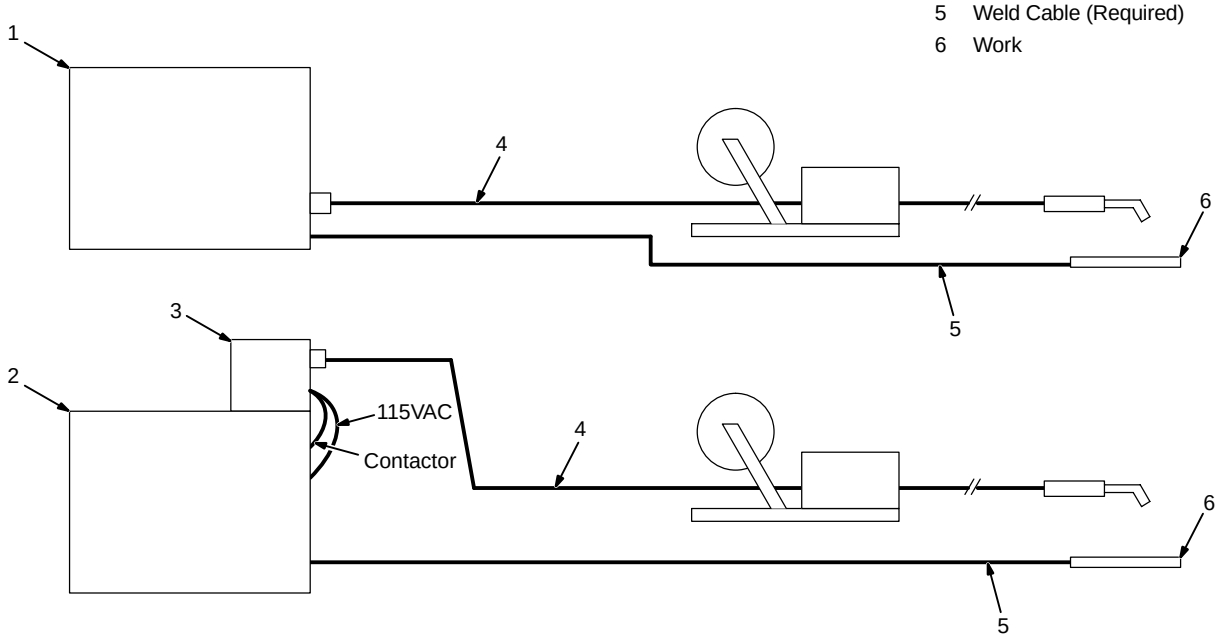
☞ *Shielding gas pressure not to exceed 689 kPa (100 psi)..*

801 920-C / Ref. 152 468-A / 155 242 / 801 919-C / 188 674

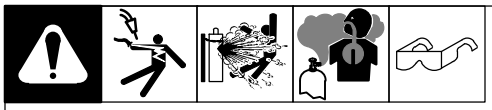
## 4-6. Equipment Connection Diagrams



1 CV Welding Power Source With 24 VAC Power
2 CV Welding Power Source Without 24 VAC Power
3 115 Volts AC /24 Volts AC Power Adapter
4 14-Pin Control Cord
5 Weld Cable (Required)
6 Work




## 4-7. 14-Pin Receptacle, Shielding Gas And Optional Volt Sense Lead



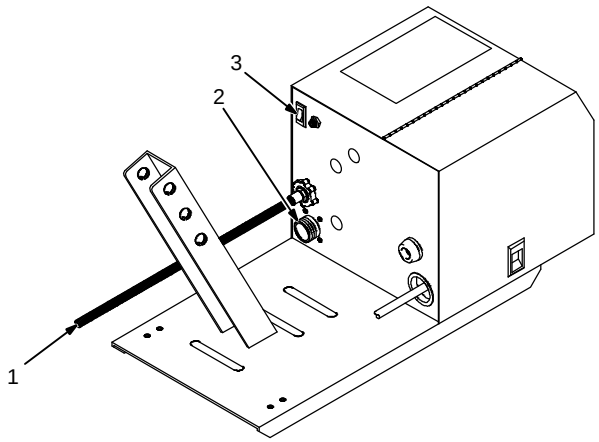
1 Gas Hose With 5/8-18 Right-hand Thread Fittings (Customer Supplied)

☞ *Shielding gas pressure not to exceed 689 kPa (100 psi).*

2 14 Pin Receptacle RC9

Use interconnecting cord to make connection to welding power source.

3 Power Switch

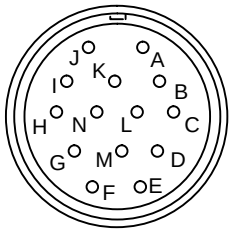



Tools Needed:

5/8, 11/16 in.

801 921-C

## 4-8. 14-Pin Receptacle Information

| REMOTE 14 | Pin* | Pin Information |
|---|---|---|
|  | A | 24 volts AC with respect to pin G. |
| | B | Contact closure to A completes 24 volts AC contactor control circuit. |
| | G | Circuit common for 24 volts AC circuit. |
| | C | +10 volts DC output to remote control with respect to pin D. |
| | D | Remote control circuit common. |
| | E | 0 to +10 volts DC input command signal from remote control with respect to pin D. |
| | F | Current feedback; 0 to 10 volts DC, 1 V/100 A |
| | H | Voltage feedback; 0 to 10 volts DC, 1 V/10 arc volts |

*The remaining pins are not used.

Ref. S-0004-A

## 4-9. Connecting Welding Gun And Weld Cable

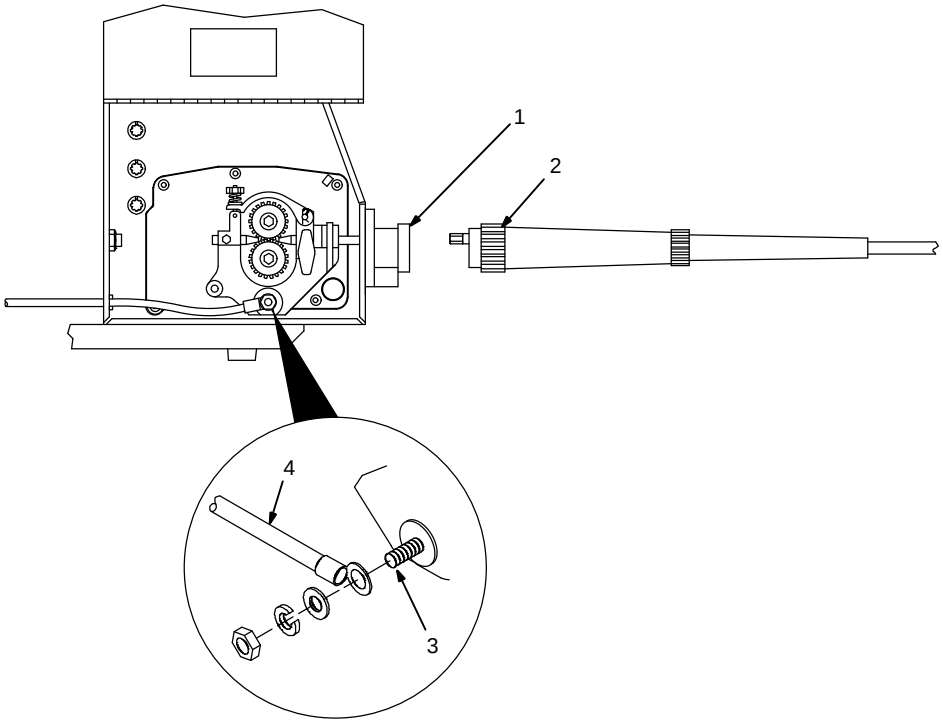
1 Gun/Feeder Adapter

2 Gun Connector

Insert gun connector into adapter. Tighten locking ring.

3 Weld Cable Terminal

4 Weld Cable From Welding Power Source

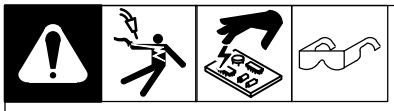



Tools Needed:

9/16, 5/8 in.

801 922-B

## 4-10. Optional Meter Circuit Board Settings

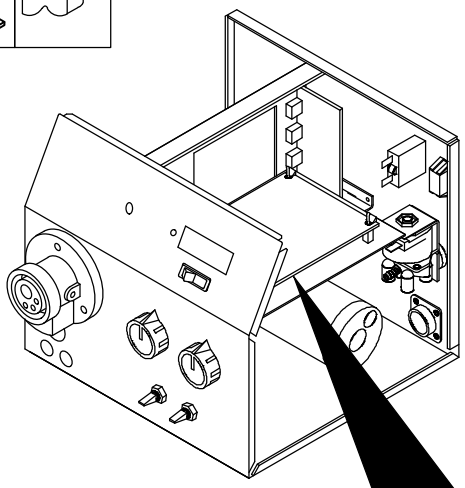


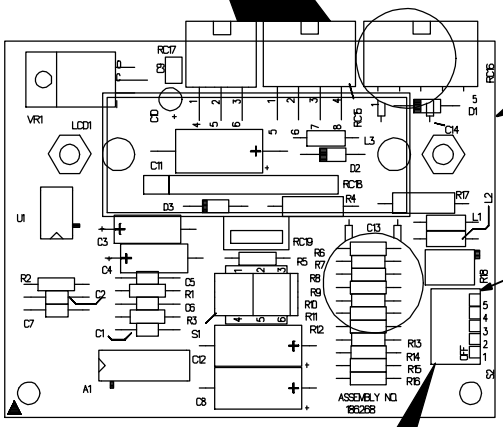
1 Meter Circuit Board

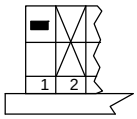
2 DIP Switch S2

Set DIP switch S2 for type of welding power source, and desired wire feed speed display (see illustration).

Reinstall wrapper.





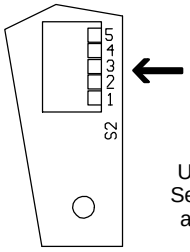



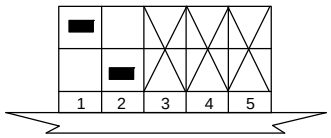

X Means switch position does not affect specified function.

▮ Means switch must be in this position.

**Voltage Sensing Function**

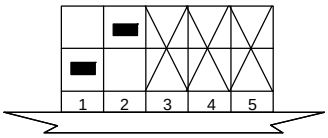
Using arc voltage sensing lead:
Set switches as shown and connect PLG42 and PLG43 in unit wiring harness. PLG41 remains unconnected.



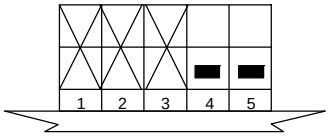

Or

Using 14-pin receptacle voltage feedback:
Set switches as shown and connect PLG42 and PLG41 in unit wiring harness. PLG43 remains unconnected.



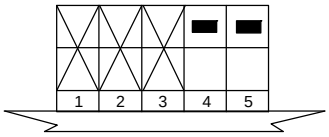

**Digital Meter Display**

Meters/Minute

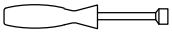



Or

Inches/Minute



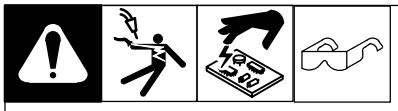

Tools Needed:

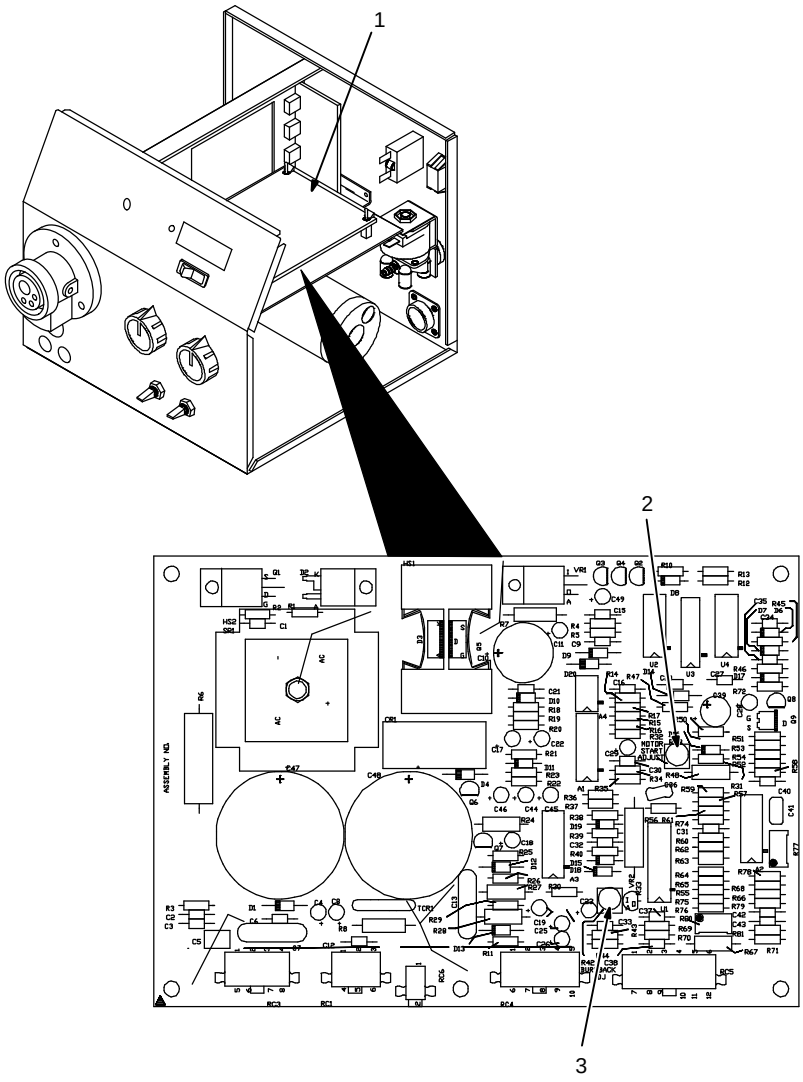


1/4 in.

801 925-C / Ref. 186 266

## 4-11. Motor Start/Burnback Control






To change wire feed starting speed proceed as follows:

**Turn Off unit and welding power source.**

Remove wrapper.

1 Motor Board PC1

2 Motor Start Control Potentiometer R73

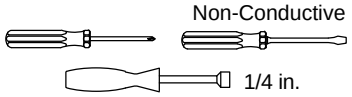
Remove protective white rubber cap before making adjustment. Adjust potentiometer R73 using a small nonconductive screwdriver. Rotate potentiometer clockwise to increase time it takes the motor to ramp up to speed.

3 Burnback Potentiometer R42

Remove protective white rubber cap before making adjustment. Adjust potentiometer R42 using a small nonconductive screwdriver. Rotate potentiometer clockwise to increase burnback time.

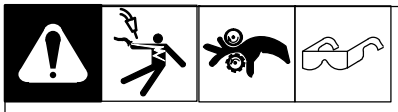
Reinstall wrapper.

Tools Needed:



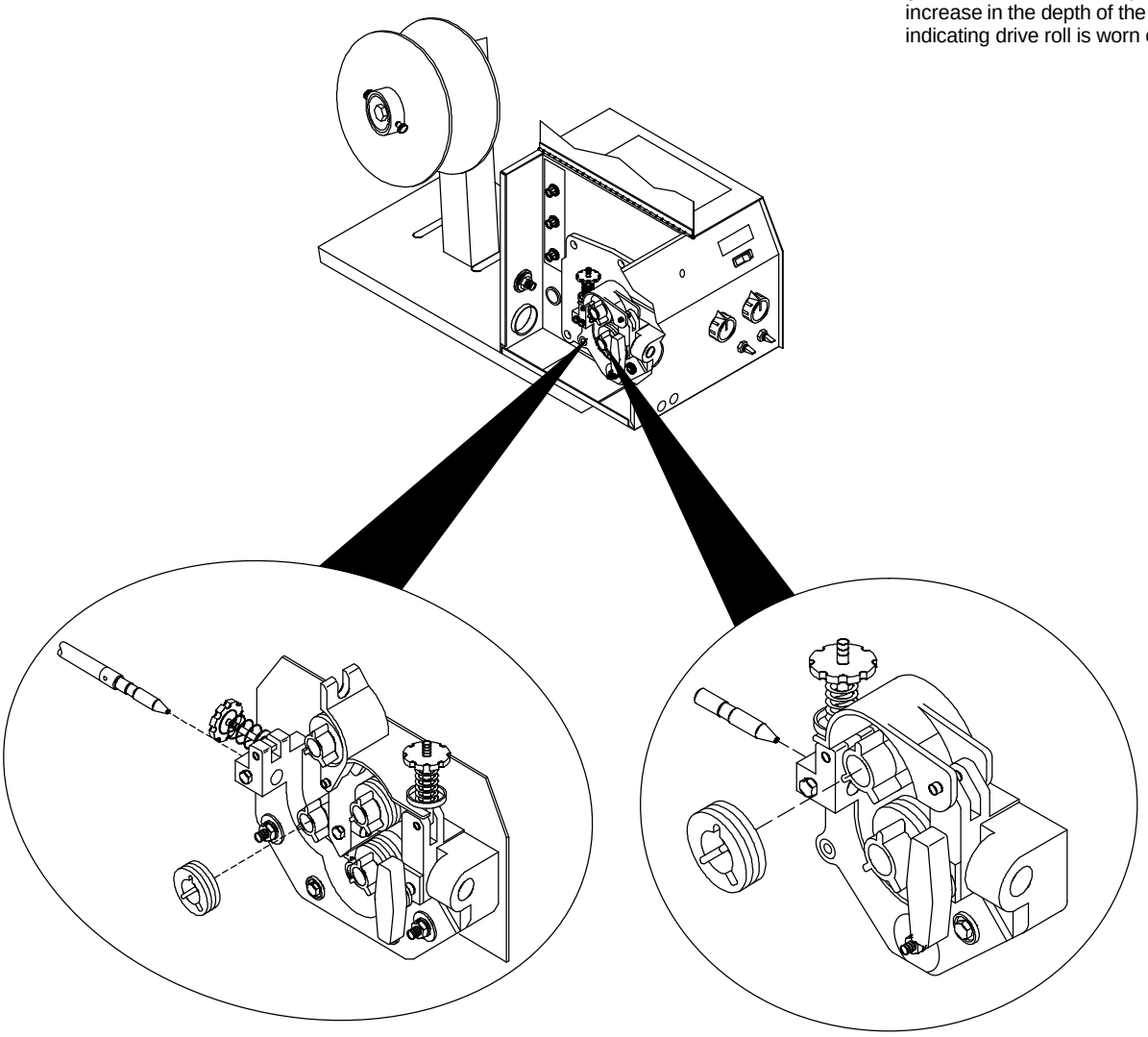

801 925-C / 192 653

## 4-12. Installing Wire Guide And Drive Roll



Install and secure inlet wire guide on either assembly, and intermediate wire guide on 4 drive roll assembly only. Install drive rolls and turn drive roll nut one click.

During maintenance intervals, remove drive rolls, and clean grooves using a wire brush. Check groove of drive roll for pitting or increase in the depth of the groove indicating drive roll is worn out.

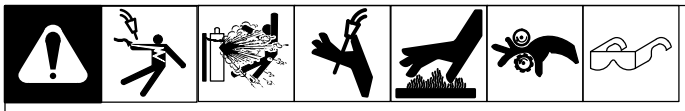


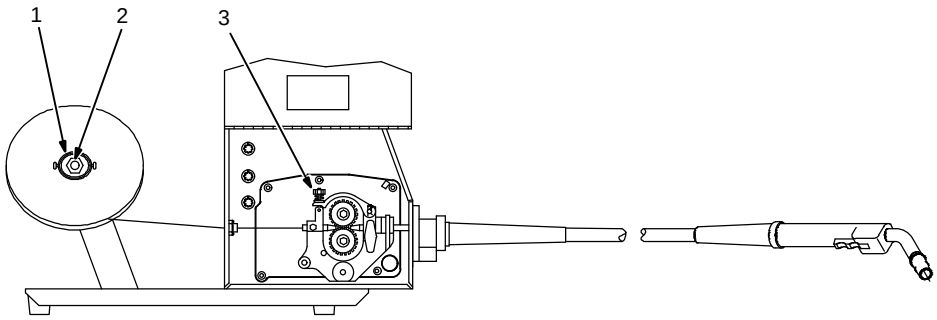
Tools Needed:

3/8 in.

801 923-C

## 4-13. Installing And Threading Welding Wire






1 Retaining Ring

2 Hub Tension Adjustment Nut

If necessary, move hub on support for use of different size wire spool.

Remove retaining ring, and install spool so hub pin fits spool hole. Reinstall retaining ring.

Adjust tension nut so wire is taut when wire feed stops.

3 Pressure Assembly Adjustment Knob

Lay gun cable out straight.

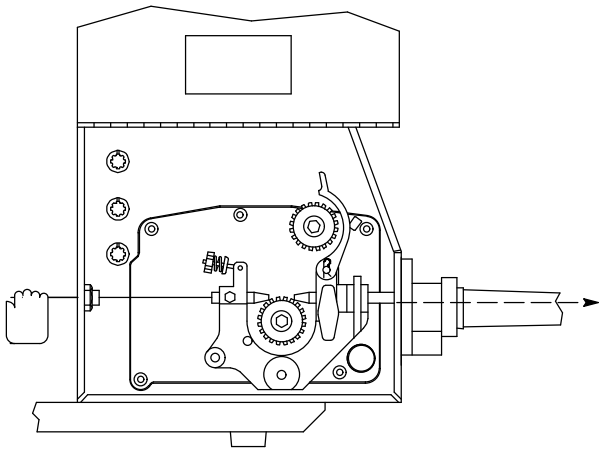
A Open pressure assembly, hold wire tightly, and cut off end. Push wire through guides into gun.

B Close and tighten pressure assembly. Press JOG button until wire comes out gun.

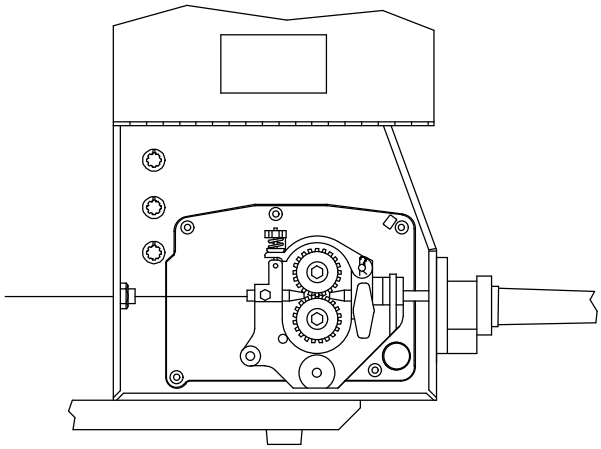
C To adjust drive roll pressure, press gun trigger to feed wire against wood surface. Tighten knob so wire does not slip.

Cut off wire. Close door.

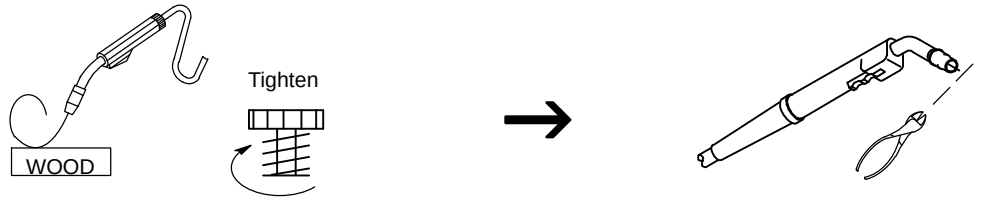
**A**



**B**



**C**

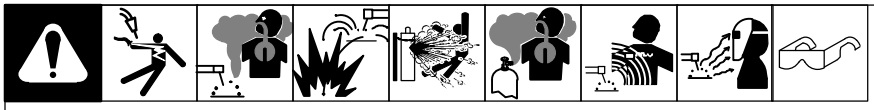


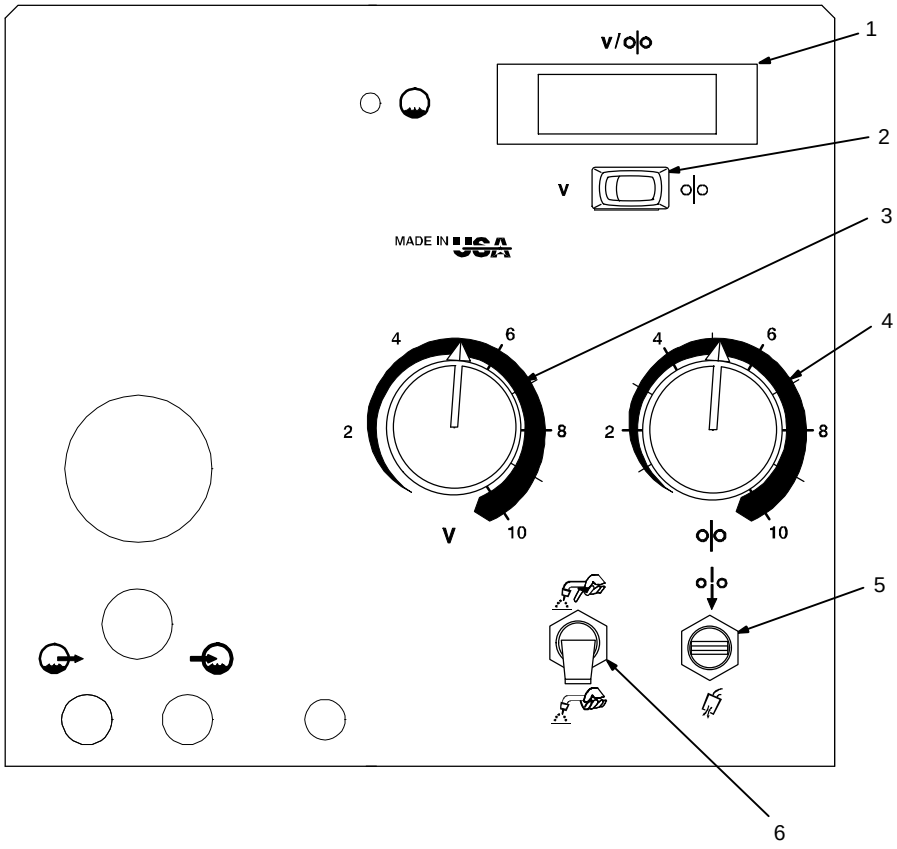

Tools Needed:

15/16 in.

Ref. 801 924-B / S-0627-A

## 5-1. Front Panel Controls






1 Optional Voltage/Wire Speed Meter

2 Optional Voltage/Wire Speed Switch

Use to choose volts or wire feed speed display.

3 Optional Remote Voltage Control

Use to set welding power source voltage at the wire feeder. Numbers are for reference only.

4 Wire Speed Control

5 Jog/Purge Switch

Use Jog position to momentarily feed welding wire at speed set on Wire Speed control without energizing welding circuit or shielding gas valve.

Use Purge position to momentarily energize gas valve to purge air from gun or adjust gas regulator.

6 Trigger Hold Switch

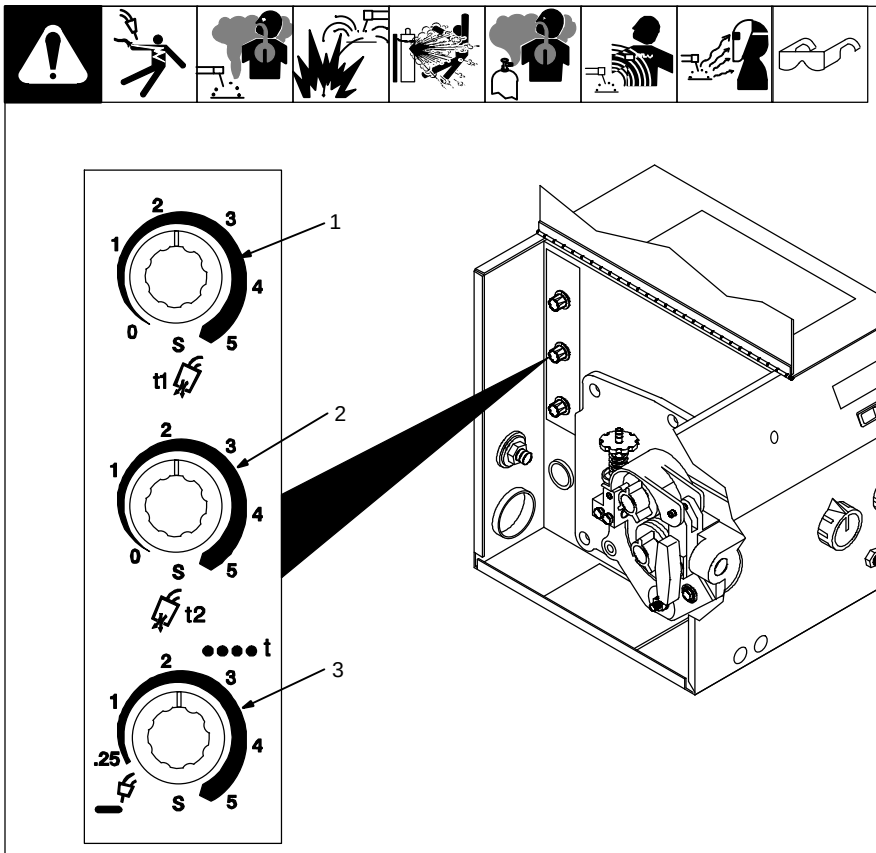
Push up to weld without holding gun trigger throughout the weld cycle.

To start weld cycle, press and release gun trigger within three seconds after an arc has been struck. To end weld, press and release gun trigger.

Power switch is on rear panel (see Section 4-7)

Ref. 188 340-A

## 5-2. Optional Side Panel Controls




1 Preflow Control

Control sets time gas flows before welding wire is energized. Time range is 0 to 5 seconds.

2 Postflow Control

Control sets time gas flows after completion of burnback. Time range is 0 to 5 seconds.

3 Spot Time Control

Factory set for 0.25 to 5 seconds of spot time. Rotating knob fully counterclockwise selects an untimed continuous weld.

Close side door.

Ref. 801 923-C / Ref. 186 589

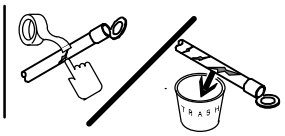
# SECTION 6 − MAINTENANCE & TROUBLESHOOTING

## 6-1. Routine Maintenance

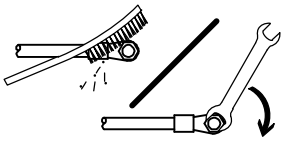
**Disconnect power before maintaining.**

### 3 Months

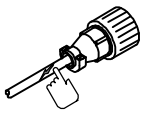
Replace Unreadable Labels



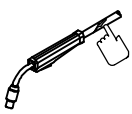
Repair Or Replace Cracked Weld Cable



Clean And Tighten Weld Terminals



14-Pin Cord

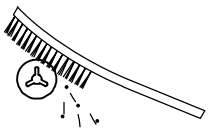


Gun Cable

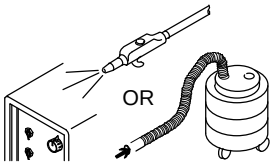
Gas Hose

Replace Cracked Parts

### 6 Months

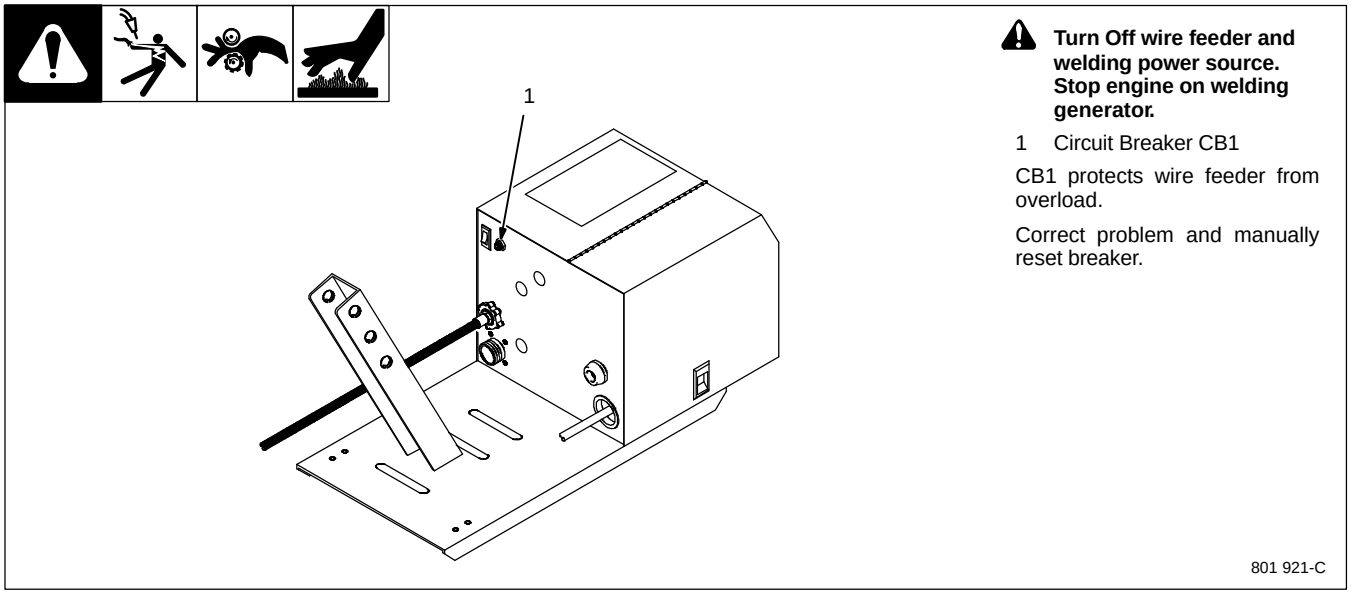


Clean Drive Rolls




Blow Out Or Vacuum Inside, During Heavy Service, Clean Monthly

## 6-2. Overload Protection




**Turn Off wire feeder and welding power source. Stop engine on welding generator.**

1 Circuit Breaker CB1

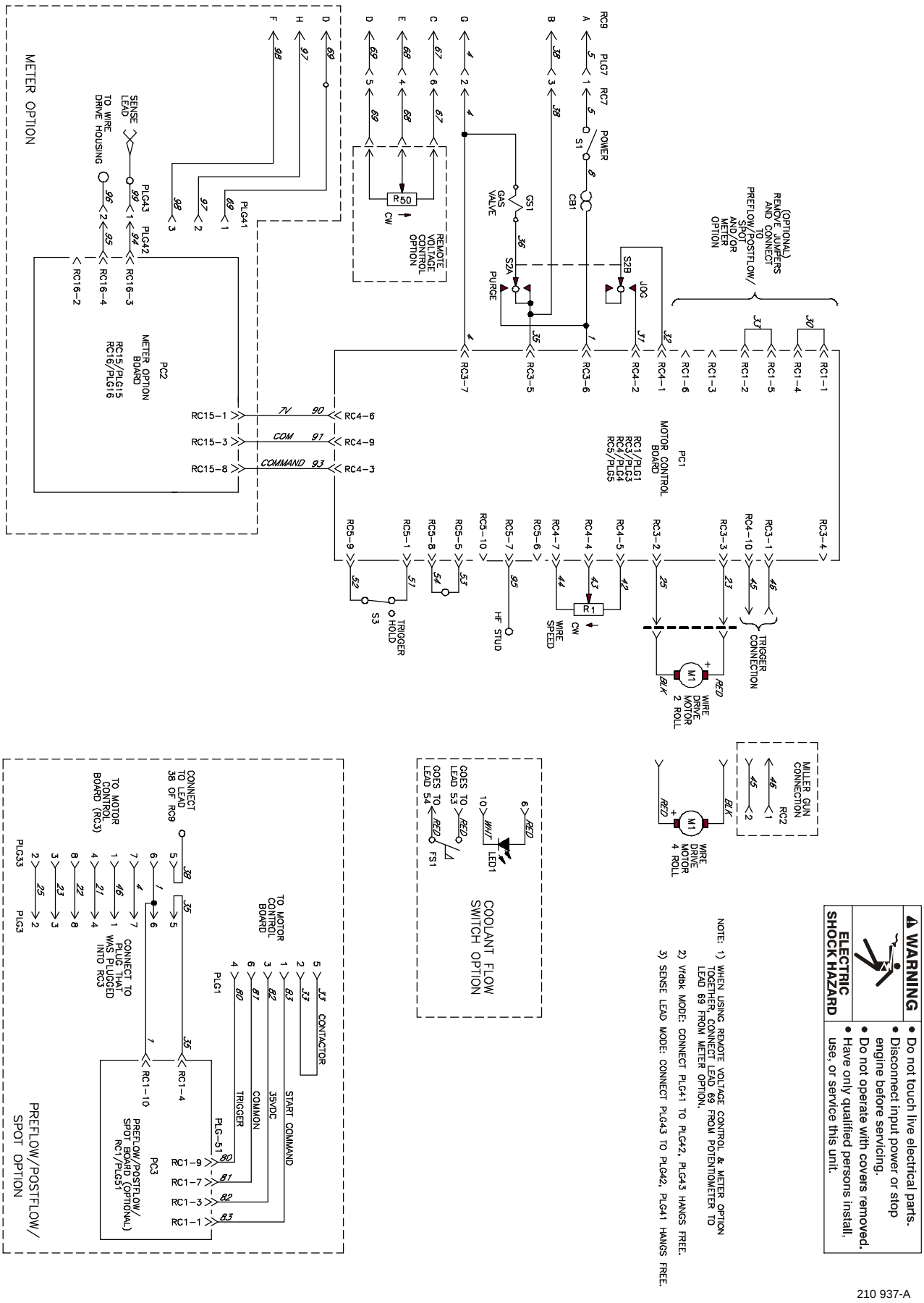
CB1 protects wire feeder from overload.

Correct problem and manually reset breaker.

## 6-3. Troubleshooting

| Trouble | Remedy |
|---|---|
| Wire does not feed, unit completely inoperative. | Turn Power switch On. |
| | Check 14−pin receptacle RC9 connections. |
| | Check input power. |
| Wire does not feed. | Check circuit breaker CB1. (see Section 6-2) |
| | Check gun trigger connection at wire feeder. Check gun trigger leads and trigger switch. See gun Owner's Manual. |
| | Have Factory Authorized Service Agent check drive motor and control board PC1. |
| Wire feeds erratically. | Readjust hub tension and drive roll pressure (see Section 4-13). |
| | Use correct size drive roll (see Parts List). |
| | Clean or replace dirty or worn drive roll (see Section 4-12). |
| | Remove weld spatter around nozzle opening. |
| | Replace contact tip or liner. See gun Owner's Manual. |
| | Have Factory Authorized Service Agent check drive motor and control board PC1. |
| Wire feeds when Jog switch is pressed but not when gun trigger is pressed. | Check gun trigger connection at wire feeder. Check gun trigger leads and trigger switch. See gun Owner's Manual. |
| Wire feeds as soon as power is applied. | Check gun trigger. See gun Owner's Manual. |
| Wire does not feed until trigger is pressed but continues to feed after trigger is released. | Check for short between gun trigger leads and weld cable. Repair or replace gun trigger leads. |
| Gas valve rattles loudly and wire feeds slowly or erratically. | Check for short between gun trigger leads and weld cable. Repair or replace gun trigger leads. |
| Gas does not flow; wire feeds. | Check gas valve and flowmeter. |

# SECTION 7 − ELECTRICAL DIAGRAM




210 937-A

**Figure 7-1. Circuit Diagram For Wire Feeder With Optional Equipment**

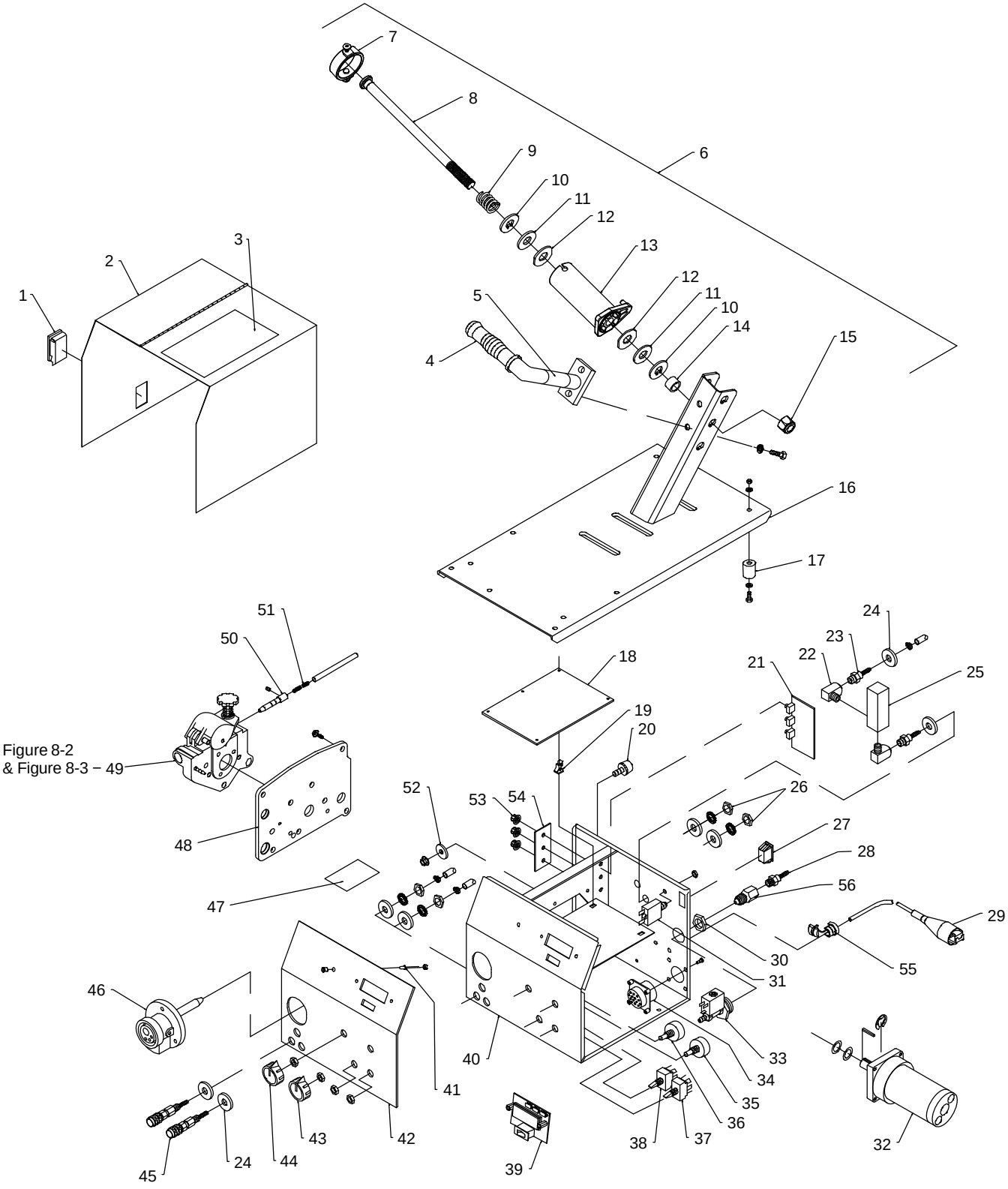



**Figure 8-1. Main Assembly**

☞ *Hardware is common and not available unless listed.*

801 990-H

| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |
|---|---|---|---|---|

**Figure 8-1. Main Assembly**

| | | | | |
|---|---|---|---|---|
| 1 | | 089 899 | Latch | 1 |
| 2 | | +198 650 | Wrapper | 1 |
| | | 126 873 | Bumper | 1 |
| 3 | | 178 936 | Label, Warning Electric Shock | 1 |
| 4 | | 187 909 | Handle, Lifting | 1 |
| | | 604 423 | Grip, Handle | 1 |
| 5 | | 188 674 | Label, Caution Incorrect Lifting | 1 |
| 6 | | 072 094 | Hub & Spindle Assembly, (Consisting Of) | 1 |
| 7 | | 058 427 | Ring, Retaining Spool | 1 |
| 8 | | 180 572 | Shaft, Spool Support | 1 |
| 9 | | 010 233 | Spring, Cprsn .970 Od X .120 Wire X 1.250 | 1 |
| 10 | | 057 971 | Washer, Flat Stl Keyed 1.500Dia X .125Thk | 2 |
| 11 | | 010 191 | Washer, Fbr .656 Id X 1.500 Od X .125Thk | 2 |
| 12 | | 058 628 | Washer, Brake Stl | 2 |
| 13 | | 058 428 | Hub, Spool | 1 |
| 14 | | 248 974 | Tubing, Stl .875 Od X12Ga Wall X .562 | 1 |
| 15 | | 135 205 | Nut, Stl Slflkg Hex Reg .625-11 W/Nylon Insert | 1 |
| 16 | | 137 461 | Base | 1 |
| 17 | | 134 306 | Foot, Rbr 1.250Dia X 1.375 High | 4 |
| 18 | PC1 | 240 352 | Circuit Card Assy, Motor | 1 |
| | PLG1 | 115 093 | Connector & Sockets | 1 |
| | PLG3 | 115 092 | Connector & Sockets | 1 |
| | PLG4 | 115 091 | Connector & Sockets | 1 |
| | PLG5 | 130 203 | Connector & Sockets | 1 |
| 19 | | 134 201 | Stand-Off Support, PC Card | 5 |
| 20 | | 131 181 | Wire Guide & Nut (22A Model) | 1 |
| 21 | PC3 | ♦240 355 | Circuit Card Assy, Meter | 1 |
| | | ♦098 691 | Stand-Off, No 6-32 x .500 | 1 |
| | PLG1 | ♦115 093 | Connector & Sockets | 1 |
| | PLG3 | ♦135 409 | Connector & Pins | 1 |
| | PLG33 | ♦115 092 | Connector & Sockets | 1 |
| | PLG51 | ♦115 091 | Connector & Sockets | 1 |
| 22 | | ♦176 518 | Fitting, Pipe Brs Elb 1/4Npt | 2 |
| 23 | | ♦188 408 | Fitting, Barb Flow Switch | 2 |
| 24 | | ♦188 442 | Washer, Shldr .515 Id 1.000 Od x .094Thk | 8 |
| 25 | | ♦163 603 | Switch, Flow | 1 |
| 26 | | ♦601 881 | Nut, .500-20 | 2 |
| 27 | S1 | 111 997 | Switch, Rocker Spst 10A 250VAC | 1 |
| 28 | | 112 863 | Fitting, Hose Brs Barbed M 1/4Tbg X 5/8-18 SAE | 1 |
| 29 | | ♦126 693 | Cable, Sensing 15Ft | 1 |
| 30 | | 220 805 | Nut, 750-14 Nps 1.48Hex .41H Nyl | 1 |
| 31 | CB1 | 161 078 | Circuit Breaker, Man Reset 1P 7A 250VAC | 1 |
| 32 | M1 | 193 188 | Motor, Gear 24VDC 146RPM (Consisting Of) | 1 |
| | | *136 745 | Brush & Spring Assembly | 2 |
| 33 | GS1 | 228 036 | Valve, 24VAC 1Way .750−14 Thd 2mm Orf 100PSI | 1 |
| 34 | RC9 | 152 492 | Receptacle W/Pins | 1 |
| 35 | R1 | 073 562 | Potentiometer, C Sltd Sft1/T 2W 10K Ohm | 1 |
| 36 | R50 | ♦035 897 | Potentiometer, C Sltd Sft1/T 2W 1K Linear | 1 |
| 37 | S2 | 211 476 | Switch, Tgl Sptt 6A 125VAC | 1 |
| 38 | S3 | 134 847 | Switch, Tgl Spdt 15A 125VAC | 1 |
| | | 187 577 | Cover, Opening Meter | 1 |
| | | ♦133 644 | Frame, Snap-In Switch Rocker | 1 |

| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |
|---|---|---|---|---|
| | | | **Figure 8-1. Main Assembly (Continued)** | |
| 39 | PC2 | ♦240 356 | Circuit Card Assy, Control (Consisting Of) | 1 |
| | LCD1 | 181 355 | Meter, Digital | 1 |
| | PLG15 | ♦115 092 | Connector & Sockets | 1 |
| | PLG16 | ♦131 055 | Connector & Sockets | 1 |
| | | ♦115 443 | Stand-Off, 6-32 X .750 Lg | 2 |
| 40 | | 249 684 | Case Assembly | 1 |
| 41 | LED1 | ♦179 203 | Led, 5100 2.0V 20Ma Green | 1 |
| 42 | | | Nameplate (Order By Model And Serial Number) | 1 |
| 43 | | 171 007 | Knob, Pointer | 1 |
| 44 | | ♦171 007 | Knob, Pointer | 1 |
| 45 | | ♦162 736 | Fitting, Pipe Brs Qdisc Fem | 2 |
| | | ♦082 367 | Fitting, Brs | 1 |
| | | ♦188 428 | Hose, Water 15.000 | 1 |
| | | ♦188 429 | Hose, Water 25.000 | 1 |
| 46 | | 187 246 | Adapter, Gun/Feeder | 1 |
| 47 | | 196 956 | Label, Warning Electric Shock And Pinch | 1 |
| 48 | | 192 875 | Plate, Insulator | 1 |
| 49 | | Fig 8-2 & 8-3 | Wire Drive Assemblies | 1 |
| 50 | | 188 149 | Guide, Wire Inlet(Consisting Of) (4 Drive Roll) | 1 |
| 51 | | 082 050 | Liner, Monocoil Inlet Wire | 1 |
| | | 082 036 | Guide, Wire Inlet | 1 |
| | | 187 421 | Tube, Guide .030-.035 | 1 |
| | | 187 422 | Tube, Guide .045-.062 | 1 |
| 52 | | 010 291 | Washer, Flat .625 X 1.250 Od X .125Thk Nylafil (22A Model) | 1 |
| | | ♦191 002 | Kit, Gun Connection (Consisting Of) | 1 |
| | RC2 | 048 282 | Receptacle W/Sockets | 1 |
| 53 | | ♦093 551 | Knob, Pointer | 3 |
| 54 | | ♦186 587 | Plate, Control Timer | 1 |
| 55 | | ♦138 044 | Strain Relief | 1 |
| 56 | | 211 989 | Fitting, W/Filter | 1 |

+When ordering a component originally displaying a precautionary label, the label should also be ordered.

♦OPTIONAL

**To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.**

| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |
|---|---|---|---|---|

**Figure 8-2. Drive Assembly, Wire (2 Drive Roll) (Fig 8-1 Item 49)**

| | | | | |
|---|---|---|---|---|
| 1 | | 602 009 | Screw, .250-20 X 1.250 Soc Hd Hex Gr 8 | 1 |
| 2 | | 172 075 | Carrier, Drive Roll W/Component 24 Pitch | 1 |
| 3 | | 054 263 | Screw, Thumb Stl .250-20 X .500 | 1 |
| 4 | | 010 224 | Pin, Spring Cs .187 X 1.000 | 1 |
| 5 | | 166 072 | Spacer, Gear | 1 |
| 6 | | 237 842 | Fastener, Pinned | 1 |
| 7 | | 085 244 | Washer, Cupped Stl .328 Id X .812 Od X .125 | 1 |
| 8 | | 089 477 | Spring, Cprsn .770 Od X .105 Wire X 1.225 | 1 |
| 9 | | 240 975 | Knob, Adjustment Tension | 1 |
| 10 | | 166 071 | Lever, Mtg Pressure Gear | 1 |
| 11 | | 151 828 | Pin, Cotter Hair .054 X .750 | 3 |
| 12 | | 079 634 | Pin, Hinge | 1 |
| 13 | | 144 172 | Fitting, Hose Brs Barbed M 3/16 Tbg X .250-20 | 1 |
| 14 | | 233 319 | Housing, Adapter Gun/Feeder | 1 |
| 15 | | 048 449 | Washer, Shldr Nyl .363 Od X .194 Id X .703 | 2 |
| 16 | | 124 778 | Knob, T 2.000 Bar W/.312-18 X 1.000lg | 1 |
| 17 | | 605 308 | Ring, Rtng Ext .500 Shaft | 1 |
| 18 | | 079 625 | Washer, Wave .500 Id X .750 Od X .015Thk | 2 |
| 19 | | 121 271 | Screw, .250-20 X .500 Soc Hd | 1 |
| 20 | | 172 076 | Carrier, Drive Roll W/Components 24 Pitch | 1 |
| 21 | | 192 874 | Insulator, Motor Drive | 1 |
| 22 | | 234 074 | Clamp, Pin Power | 1 |
| 23 | | 234 073 | Pin, Hinge | 1 |

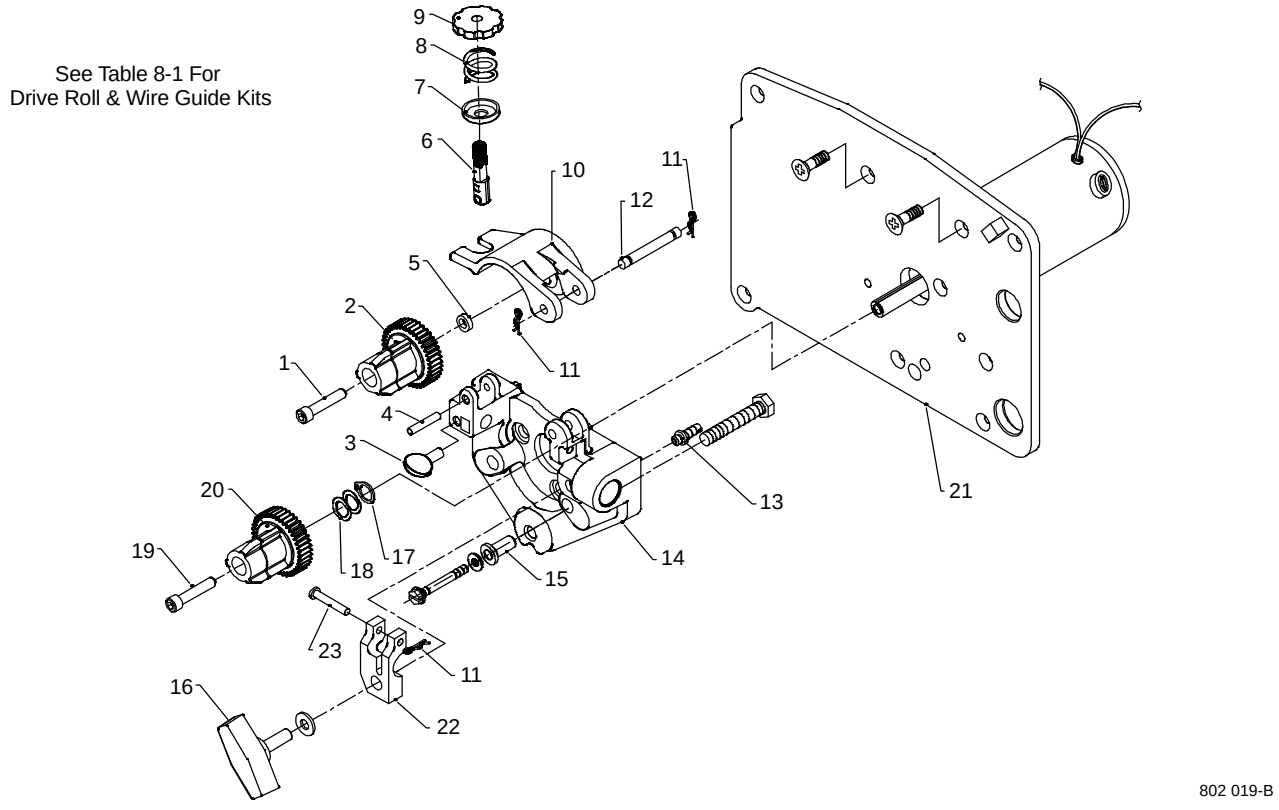



**Figure 8-2. Drive Assembly, Wire (2 Drive Roll )**

**To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.**

| Item No. | Dia. Mkgs. | Part No. | Description | Quantity |
|---|---|---|---|---|
| | | | **Figure 8-3. Drive Assembly, Wire (4 Drive Roll) (Fig 8-1 Item 49)** | |
| 1 | | 602 009 | Screw, .250-20 X 1.250 Soc Hd Hex Gr 8 | 4 |
| 2 | | 172 075 | Carrier, Drive Roll W/Component 24 Pitch | 4 |
| 3 | | 166 072 | Spacer, Gear | 4 |
| 4 | | 054 263 | Screw, Thumb Stl .250-20 X .500 | 2 |
| 5 | | 010 224 | Pin, Spring Cs .187 X 1.000 | 2 |
| 6 | | 237 842 | Fastener, Pinned | 2 |
| 7 | | 085 244 | Washer, Cupped Stl .328 Id X .812 Od X .125 | 2 |
| 8 | | 089 477 | Spring, Cprsn .770 Od X .105 Wire X 1.225 | 2 |
| 9 | | 240 975 | Knob, Adjust Tension 1.250 Dia X .312−18 Thrd | 2 |
| 10 | | 230 691 | Lever, Mtg Pressure Gear | 1 |
| 11 | | 234 784 | Pin, Clevis .250 Od X 1.751 Lg W/Groove | 1 |
| 12 | | 151 828 | Pin, Cotter Hair .054 X .750 | 2 |
| 13 | | 238 728 | Lever, Mtg Pressure Gear | 1 |
| 14 | | 605 308 | Ring, Rtng Ext .500 Shaft | 1 |
| 15 | | 187 325 | Insulator, Drive Assembly | 1 |
| 16 | | 144 172 | Fitting, Hose Brs Barbed M 3/16 Tbg X .250-20 | 1 |
| 17 | | 238 726 | Housing, Adapter Gun/Feeder | 1 |
| 18 | | 221 654 | Washer, Shldr Insulating | 2 |
| 19 | | 124 778 | Knob, T 2.000 Bar W/.312-18 X 1.000lg | 1 |
| 20 | | 079 625 | Washer, Wave .500 Id X .750 Od X .015Thk | 2 |
| 21 | | 092 865 | Key, Stl | 1 |
| 22 | | 172 077 | Carrier, Drive Roll Keyed 24 Pitch | 1 |
| 23 | | 121 271 | Screw, .250-20 X .500 Soc Hd | 1 |

☞ *Hardware is common and not available unless listed.*

See Table 7-1 For Drive Roll & Wire Guide Kits

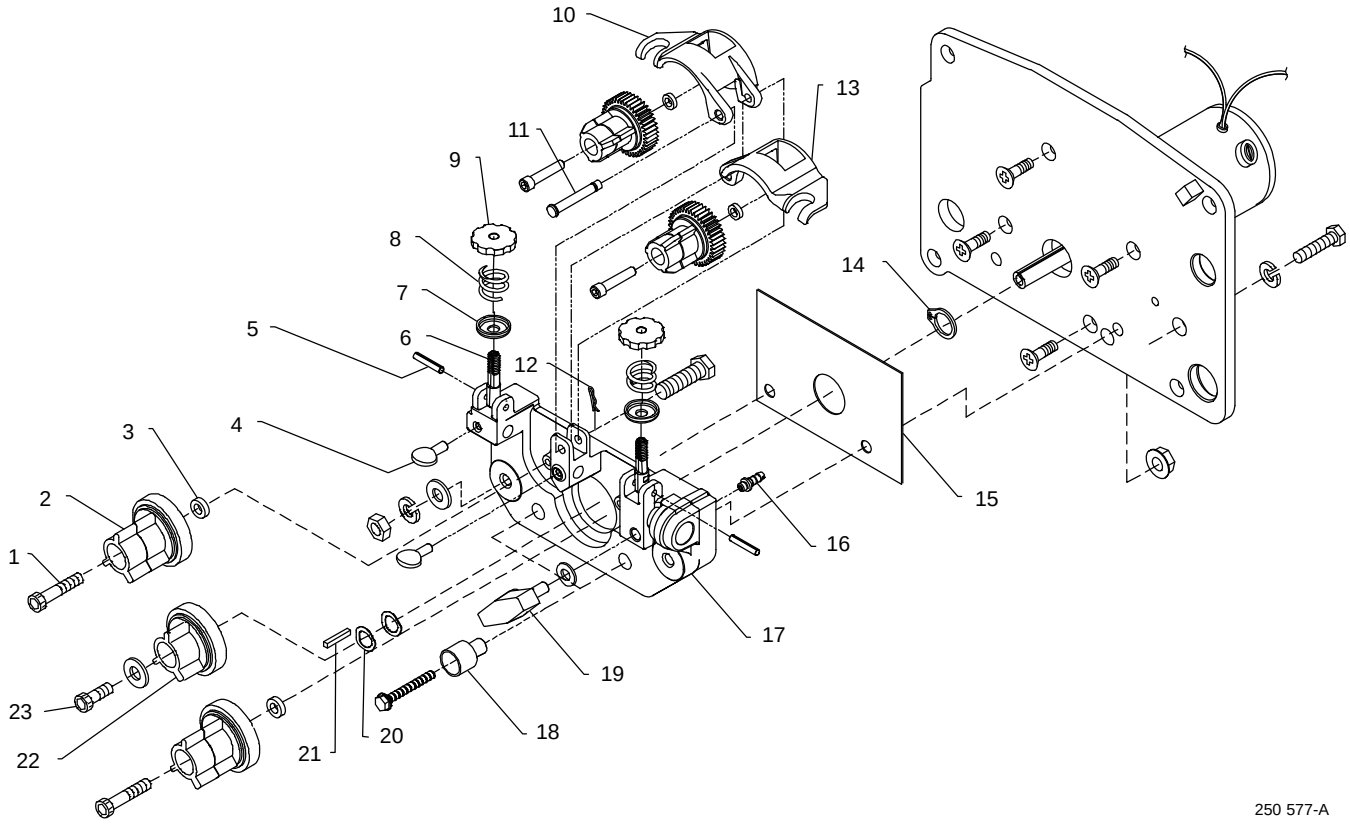



**Figure 8-3. Drive Assembly, Wire (4 Drive Roll )**

**To maintain the factory original performance of your equipment, use only Manufacturer's Suggested Replacement Parts. Model and serial number required when ordering parts from your local distributor.**

## Table 8-1. Drive Roll And Wire Guide Kits (2 Drive Roll)

☞ *Base selection of drive rolls upon the following recommended usages:*

1. *V-Grooved rolls for hard wire.*
2. *U-Grooved rolls for soft and soft shelled cored wires.*
3. *U-Cogged rolls for extremely soft shelled wires (usually hard surfacing types).*
4. *V-Knurled rolls for hard shelled cored wires.*
5. *Drive roll types may be mixed to suit particular requirements (example: V-Knurled roll in combination with U-Grooved).*

| Wire Diameter | | | Kit No. | Drive Roll | | Inlet Wire Guide |
|---|---|---|---|---|---|---|
| Fraction | Decimal | Metric | | Part No. | Type | |
| .023/.025 in | .023/.025 in | 0.6 mm | 087 131 | 087 130 | V-Grooved | 056 192 |
| .030 in | .030 in | 0.8 mm | 079 594 | 053 695 | V-Grooved | 056 192 |
| .035 in | .035 in | 0.9 mm | 079 595 | 053 700 | V-Grooved | 056 192 |
| .040 in | .040 in | 1.0 mm | 161 189 | 053 696 | V-Grooved | 056 192 |
| .045 in | .045 in | 1.2 mm | 079 596 | 053 697 | V-Grooved | 056 193 |
| .052 in | .052 in | 1.3 mm | 079 597 | 053 698 | V-Grooved | 056 193 |
| 1/16 in | .062 in | 1.6 mm | 079 598 | 053 699 | V-Grooved | 056 195 |
| .035 in | .035 in | 0.9 mm | 044 749 | 072 000 | U-Grooved | 056 192 |
| .045 in | .045 in | 1.2 mm | 079 599 | 053 701 | U-Grooved | 056 193 |
| .052 in | .052 in | 1.3 mm | 079 600 | 053 702 | U-Grooved | 056 193 |
| 1/16 in | .062 in | 1.6 mm | 079 601 | 053 706 | U-Grooved | 056 195 |
| 5/64 in | .079 in | 2.0 mm | 079 602 | 053 704 | U-Grooved | 056 195 |
| .035 in | .035 in | 0.9 mm | 079 606 | 132 958 | V-Knurled | 056 192 |
| .045 in | .045 in | 1.2 mm | 079 607 | 132 957 | V-Knurled | 056 193 |
| .052 in | .052 in | 1.3 mm | 079 608 | 132 956 | V-Knurled | 056 193 |
| 1/16 in | .062 in | 1.6 mm | 079 609 | 132 955 | V-Knurled | 056 195 |
| .068-.072 in | .068-.072 in | 1.8 mm | 089 984 | 132 959 | V-Knurled | 056 195 |
| 5/64 in | .079 in | 2.0 mm | 079 610 | 132 960 | V-Knurled | 056 195 |
| .045 in | .045 in | 1.2 mm | 083 318 | 083 489 | U-Cogged | 056 193 |
| .052 in | .052 in | 1.3 mm | 083 317 | 083 490 | U-Cogged | 056 193 |
| 1/16 in | .062 in | 1.6 mm | 079 614 | 053 708 | U-Cogged | 056 195 |
| 5/64 in | .079 in | 2.0 mm | 079 615 | 053 710 | U-Cogged | 056 195 |

S-0157-C

## Table 8-2. Drive Roll & Wire Guide Kits (4 Drive Roll)

☞ *Base selection of drive rolls upon the following recommended usages:*

1. *V-Grooved rolls for hard wire.*
2. *U-Grooved rolls for soft and soft shelled cored wires.*
3. *U-Cogged rolls for extremely soft shelled wires (usually hard surfacing types).*
4. *V-Knurled rolls for hard shelled cored wires.*
5. *Drive roll types may be mixed to suit particular requirements (example: V-Knurled roll in combination with U-Grooved).*

| Wire Diameter | | | Kit No. | Drive Roll | | Wire Guide | |
|---|---|---|---|---|---|---|---|
| Fraction | Decimal | Metric | | Part No. | Type | Inlet | Intermediate |
| .023/.025 in | .023/.025 in | 0.6 mm | 087 132 | 087 130 | V-Grooved | 056 192 | 056 206 |
| .030 in | .030 in | 0.8 mm | 046 780 | 053 695 | V-Grooved | 056 192 | 056 206 |
| .035 in | .035 in | 0.9 mm | 046 781 | 053 700 | V-Grooved | 056 192 | 056 206 |
| .040 in | .040 in | 1.0 mm | 191 917 | 053 696 | V-Grooved | 056 192 | 056 206 |
| .045 in | .045 in | 1.2 mm | 046 782 | 053 697 | V-Grooved | 056 193 | 056 207 |
| .052 in | .052 in | 1.3 mm | 046 783 | 053 698 | V-Grooved | 056 193 | 056 207 |
| 1/16 in | .062 in | 1.6 mm | 046 784 | 053 699 | V-Grooved | 056 195 | 056 209 |
| .035 in | .035 in | 0.9 mm | 044 750 | 072 000 | U-Grooved | 056 192 | 056 206 |
| .045 in | .045 in | 1.2 mm | 046 785 | 053 701 | U-Grooved | 056 193 | 056 207 |
| .052 in | .052 in | 1.3 mm | 046 786 | 053 702 | U-Grooved | 056 193 | 056 207 |
| 1/16 in | .062 in | 1.6 mm | 046 787 | 053 706 | U-Grooved | 056 195 | 056 209 |
| 5/64 in | .079 in | 2.0 mm | 046 788 | 053 704 | U-Grooved | 056 195 | 056 209 |
| .035 in | .035 in | 0.9 mm | 046 792 | 132 958 | V-Knurled | 056 192 | 056 206 |
| .045 in | .045 in | 1.2 mm | 046 793 | 132 957 | V-Knurled | 056 193 | 056 207 |
| .052 in | .052 in | 1.3 mm | 046 794 | 132 956 | V-Knurled | 056 193 | 056 207 |
| 1/16 in | .062 in | 1.6 mm | 046 795 | 132 955 | V-Knurled | 056 195 | 056 209 |
| .068-.072 in | .068-.072 in | 1.8 mm | 089 985 | 132 959 | V-Knurled | 056 195 | 056 209 |
| 5/64 in | .079 in | 2.0 mm | 046 796 | 132 960 | V-Knurled | 056 195 | 056 209 |
| .045 in | .045 in | 1.2 mm | 083 319 | 083 489 | U-Cogged | 056 193 | 056 207 |
| .052 in | .052 in | 1.3 mm | 083 320 | 083 490 | U-Cogged | 056 193 | 056 207 |
| 1/16 in | .062 in | 1.6 mm | 046 800 | 053 708 | U-Cogged | 056 195 | 056 209 |
| 5/64 in | .079 in | 2.0 mm | 046 801 | 053 710 | U-Cogged | 056 195 | 056 209 |

Ref. S-0025-D

*Warranty Questions?*

Call
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**Service**
You always get the fast, reliable response you need. Most replacement parts can be in your hands in 24 hours.

**Support**
Need fast answers to the tough welding questions? Contact your distributor. The expertise of the distributor and Miller is there to help you, every step of the way.

Miller

# TRUE BLUE® WARRANTY

## Effective January 1, 2011
## (Equipment with a serial number preface of MB or newer)

This limited warranty supersedes all previous Miller warranties and is exclusive with no other guarantees or warranties expressed or implied.

LIMITED WARRANTY − Subject to the terms and conditions below, Miller Electric Mfg. Co., Appleton, Wisconsin, warrants to its original retail purchaser that new Miller equipment sold after the effective date of this limited warranty is free of defects in material and workmanship at the time it is shipped by Miller. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

Within the warranty periods listed below, Miller will repair or replace any warranted parts or components that fail due to such defects in material or workmanship. Miller must be notified in writing within thirty (30) days of such defect or failure, at which time Miller will provide instructions on the warranty claim procedures to be followed.

Miller shall honor warranty claims on warranted equipment listed below in the event of such a failure within the warranty time periods. All warranty time periods start on the delivery date of the equipment to the original end-user purchaser, and not to exceed one year after the equipment is shipped to a North American distributor or eighteen months after the equipment is shipped to an International distributor.

1. 5 Years Parts — 3 Years Labor
   * Original main power rectifiers only to include SCRs, diodes, and discrete rectifier modules
2. 3 Years — Parts and Labor
   * Engine Driven Welding Generators **(NOTE: Engines are warranted separately by the engine manufacturer.)**
   * Inverter Power Sources (Unless Otherwise Stated)
   * Plasma Arc Cutting Power Sources
   * Process Controllers
   * Semi-Automatic and Automatic Wire Feeders
   * Smith 30 Series Flowgauge and Flowmeter Regulators (No Labor)
   * Transformer/Rectifier Power Sources
   * Water Coolant Systems (Integrated)
3. 2 Years — Parts
   * Auto-Darkening Helmet Lenses (No Labor)
4. 1 Year — Parts and Labor Unless Specified
   * Automatic Motion Devices
   * CoolBelt and CoolBand Blower Unit (No Labor)
   * External Monitoring Equipment and Sensors
   * Field Options (NOTE: Field options are covered for the remaining warranty period of the product they are installed in, or for a minimum of one year — whichever is greater.)
   * Flowgauge and Flowmeter Regulators (No Labor)
   * RFCS Foot Controls (Except RFCS-RJ45)
   * Fume Extractors
   * HF Units
   * ICE Plasma Cutting Torches (No Labor)
   * Induction Heating Power Sources, Coolers, and Electronic Controls/Recorders
   * Load Banks
   * Motor Driven Guns (w/exception of Spoolmate Spoolguns)
   * PAPR Blower Unit (No Labor)
   * Positioners and Controllers
   * Racks
   * Running Gear/Trailers
   * Spot Welders
   * Subarc Wire Drive Assemblies
   * Water Coolant Systems (Non-Integrated)
   * Weldcraft-Branded TIG Torches (No Labor)
   * Wireless Remote Foot/Hand Controls and Receivers
   * Work Stations/Weld Tables (No Labor)
5. 6 Months — Parts
   * Batteries
   * Bernard Guns (No Labor)
   * Tregaskiss Guns (No Labor)
6. 90 Days — Parts
   * Accessory (Kits)
   * Canvas Covers
   * Induction Heating Coils and Blankets, Cables, and Non-Electronic Controls
   * M-Guns
   * MIG Guns and Subarc (SAW) Guns
   * Remote Controls and RFCS-RJ45
   * Replacement Parts (No labor)
   * Roughneck Guns
   * Spoolmate Spoolguns

Miller's True Blue® Limited Warranty shall not apply to:

1. **Consumable components; such as contact tips, cutting nozzles, contactors, brushes, relays, work station table tops and welding curtains, or parts that fail due to normal wear. (Exception: brushes and relays are covered on all engine-driven products.)**
2. Items furnished by Miller, but manufactured by others, such as engines or trade accessories. These items are covered by the manufacturer's warranty, if any.
3. Equipment that has been modified by any party other than Miller, or equipment that has been improperly installed, improperly operated or misused based upon industry standards, or equipment which has not had reasonable and necessary maintenance, or equipment which has been used for operation outside of the specifications for the equipment.

MILLER PRODUCTS ARE INTENDED FOR PURCHASE AND USE BY COMMERCIAL/INDUSTRIAL USERS AND PERSONS TRAINED AND EXPERIENCED IN THE USE AND MAINTENANCE OF WELDING EQUIPMENT.

In the event of a warranty claim covered by this warranty, the exclusive remedies shall be, at Miller's option: (1) repair; or (2) replacement; or, where authorized in writing by Miller in appropriate cases, (3) the reasonable cost of repair or replacement at an authorized Miller service station; or (4) payment of or credit for the purchase price (less reasonable depreciation based upon actual use) upon return of the goods at customer's risk and expense. Miller's option of repair or replacement will be F.O.B., Factory at Appleton, Wisconsin, or F.O.B. at a Miller authorized service facility as determined by Miller. Therefore no compensation or reimbursement for transportation costs of any kind will be allowed.

TO THE EXTENT PERMITTED BY LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL MILLER BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY.

ANY EXPRESS WARRANTY NOT PROVIDED HEREIN AND ANY IMPLIED WARRANTY, GUARANTY OR REPRESENTATION AS TO PERFORMANCE, AND ANY REMEDY FOR BREACH OF CONTRACT TORT OR ANY OTHER LEGAL THEORY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION, OPERATION OF LAW, CUSTOM OF TRADE OR COURSE OF DEALING, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE, WITH RESPECT TO ANY AND ALL EQUIPMENT FURNISHED BY MILLER IS EXCLUDED AND DISCLAIMED BY MILLER.

Some states in the U.S.A. do not allow limitations of how long an implied warranty lasts, or the exclusion of incidental, indirect, special or consequential damages, so the above limitation or exclusion may not apply to you. This warranty provides specific legal rights, and other rights may be available, but may vary from state to state.

In Canada, legislation in some provinces provides for certain additional warranties or remedies other than as stated herein, and to the extent that they may not be waived, the limitations and exclusions set out above may not apply. This Limited Warranty provides specific legal rights, and other rights may be available, but may vary from province to province.

# Owner's Record

Please complete and retain with your personal records.

| | |
|---|---|
| Model Name | Serial/Style Number |
| Purchase Date | (Date which equipment was delivered to original customer.) |
| Distributor | |
| Address | |
| City | |
| State | Zip |

# For Service

***Contact a DISTRIBUTOR or SERVICE AGENCY near you.***

Always provide Model Name and Serial/Style Number.

| | |
|---|---|
| Contact your Distributor for: | Welding Supplies and Consumables<br>Options and Accessories<br>Personal Safety Equipment<br>Service and Repair<br>Replacement Parts<br>Training (Schools, Videos, Books)<br>Technical Manuals (Servicing Information and Parts)<br>Circuit Diagrams<br>Welding Process Handbooks<br>To locate a Distributor or Service Agency visit www.millerwelds.com or call 1-800-4-A-Miller |
| Contact the Delivering Carrier to: | File a claim for loss or damage during shipment.<br>For assistance in filing or settling claims, contact your distributor and/or equipment manufacturer's Transportation Department. |

**Miller Electric Mfg. Co.**
An Illinois Tool Works Company
1635 West Spencer Street
Appleton, WI 54914 USA

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USA Phone: 920-735-4505 Auto-Attended
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For International Locations Visit
www.MillerWelds.com

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